OCEAN DUMPING OF MUNICIPAL SLUDGE

(100-76)

HEARING

BEFORE THE

SUBCOMMITTEE ON WATER RESOURCES

OF THE

COMMITTEE ON

PUBLIC WORKS AND TRANSPORTATION

HOUSE OF REPRESENTATIVES

ONE HUNDREDTH CONGRESS

SECOND SESSION

ON

H.R. 4338

TO AMEND THE MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT OF 1972 TO IMPOSE SPECIAL FEES ON THE OCEAN DISPOSAL OF SEWAGE SLUDGE, AND FOR OTHER PURPOSES

AUGUST 2, 1988

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100TH CONGRESS
2D SESSION

H. R. 4338

[Report No. 100–747, Part I]

To amend the Marine Protection, Research, and Sanctuaries Act of 1972 to impose special fees on the ocean disposal of sewage sludge, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

MARCH 31, 1988

Mr. HUGHES (for himself, Ms. SCHNEIDER, and Mr. SAXTON) introduced the following bill; which was referred to the Committee on Merchant Marine and Fisheries

JUNE 30, 1988

Reported with an amendment and referred to the Committee on Public Works and Transportation for a period ending not later than August 5, 1988, for consideration of such provisions of the bill and amendment as fall within the jurisdiction of that committee pursuant to clause 1(p), rule X

[Strike out all after the enacting clause and insert the part printed in italic]

A BILL

To amend the Marine Protection, Research, and Sanctuaries Act of 1972 to impose special fees on the ocean disposal of sewage sludge, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

~~SECTION 1. ESTABLISHMENT OF FEES FOR OCEAN DUMPING OF SEWAGE SLUDGE.~~

~~The Marine Protection, Research, and Sanctuaries Act of 1972 (33 U.S.C. 1401 et seq.) is amended by inserting after section 104A the following:~~

~~"SEC. 104B. OCEAN DISPOSAL OF MUNICIPAL SLUDGE.~~

~~"(a) Special Disposal Fees for Municipal Sludge.—~~

~~"(1) In general.—Notwithstanding any other provision of law after December 31, 1988 (including a person described in section 104(a)(1)(C)), shall dump, or transport for the purpose of dumping, sewage sludge from the United States into ocean waters, unless such person shall have obtained from the Administrator a permit which imposes a special disposal fee of—~~

~~"(A) $20 for each dry ton (or equivalent) of sewage sludge dumped under the authority of that permit before August 1, 1989;~~

~~"(B) $35 for each dry ton (or equivalent) of sewage sludge dumped under the authority of that permit after July 31, 1989, and before August 1, 1990; and~~

~~"(C) $50 for each dry ton (or equivalent) of sewage sludge dumped under the authority of that permit after July 31, 1990.~~

~~"(2) PAYMENT OF FEES.—(A) If a permittee has not established a trust account in accordance with paragraph (3), or if such a trust account established by a permittee has been terminated under the provisions of paragraph (3)(C), fees imposed on such permittee pursuant to paragraph (1) shall be paid to the Administrator.~~

~~"(B) If a permittee has established a trust account in accordance with paragraph (3), the permittee—~~

~~"(i) shall deposit 75 percent of the fees imposed on the permittee pursuant to paragraph (1) into that account;~~

~~"(ii) shall pay 15 percent of the fees imposed on the permittee pursuant to paragraph (1) to the Administrator; and~~

~~"(iii) shall pay 10 percent of the fees imposed on the permittee pursuant to paragraph (1) to the head of the Department in which the Coast Guard is operating for use by the Coast Guard in carrying out the surveillance of, and enforcement of the laws relating to, the dumping of sewage sludge in ocean waters.~~

~~"(3) TRUST ACCOUNT.—(A) Each permittee under this section shall establish a trust account into~~

~~which the permittee shall deposit fees imposed pursuant to paragraph (1) of this subsection.~~

~~"(B) An account shall be a trust account for purposes of this subsection only if it meets, to the satisfaction of the Administrator, the following requirements:~~

~~"(i) Amounts in the account may be withdrawn only with the concurrence of the permittee and the Administrator.~~

~~"(ii) Amounts in the account may be expended only for projects which are consistent with the prohibition of subsection (b), and which will identify, develop, and implement—~~

~~"(I) long-term land-based alternatives to the disposal of sewage sludge by ocean dumping, including alternatives utilizing resource recovery, recycling, thermal reduction, or composting techniques; or~~

~~"(II) improvements in pretreatment, treatment, and storage techniques for sewage sludge to facilitate the implementation of such long-term alternatives.~~

~~"(C) The balance of the amounts in a trust account established under the paragraph shall revert and be paid to the Administrator, and the permittee shall terminate the account, upon a finding by the Adminis-~~

~~trator that the permittee did not deposit fees into the account as required by this paragraph, or did not expend amounts from the account in accordance with this paragraph.~~

~~"(4) Use of amounts collected as fees.—Amounts paid to the Administrator under paragraph (2) shall be used by the Administrator—~~

~~"(A) for costs incurred, or expected to be incurred, in undertaking activities directly associated with the issuance of permits, including an environmental assessment of the direct effects of the dumping under the permits;~~

~~"(B) to prepare reports required under paragraph (6); and~~

~~"(C) to carry out such other research, studies, and projects the Administrator considers necessary for, and consistent with, the development and implementation of suitable land-based alternatives to the dumping of sewage sludge in ocean waters.~~

~~"(5) Waiver of fees.—(A) Fees imposed under this subsection may be waived by the Administrator with respect to any permittee only if such permittee has entered into a compliance agreement with the Ad-~~

~~ministrator not later than December 31, 1988, that includes the following:~~

~~"(i) A plan that will, in the opinion of the Administrator, if adhered to by the permittee in good faith, result in the phasing out and eventual cessation of the ocean dumping of sewage sludge by such permittee, consistent with the prohibition of subsection (b), through the design, construction, and placing into full operation of a system (hereinafter in this subsection referred to as the 'alternate system') for the disposal of the sewage sludge of the permittee other than by dumping into ocean waters.~~

~~"(ii) A schedule that, in the opinion of the Administrator, specifies reasonable dates by which the permittee shall complete the various activities that are necessary for the timely implementation of the alternate system under the plan.~~

~~"(B) The schedule referred to in subparagraph (A)(i) shall include, in addition to such other activities that the Administrator considers necessary or appropriate—~~

~~"(i) the determination of the kind of alternate system that will be implemented;~~

~~"(ii) the preparation of engineering designs and related specifications;~~

~~"(iii) compliance with appropriate Federal, State, and local regulatory requirements;~~

~~"(iv) site and equipment acquisitions;~~

~~"(v) construction and testing; and~~

~~"(vi) operation at full capacity.~~

~~"(6) REPORTS.—Six months after the date of enactment of this section, and on the last day of each 6-month period thereafter, the Administrator shall prepare and submit to the Congress a report on—~~

~~"(A) land-based disposal options for sewage sludge generated by permittees; and~~

~~"(B) progress being made by permittees toward the cessation of ocean dumping of sewage sludge.~~

~~"(b) PROHIBITION ON OCEAN DUMPING OF SEWAGE SLUDGE.—It shall be unlawful for any person to dump, or transport for the purpose of dumping, sewage sludge from the United States into ocean waters after December 31, 1992.~~

~~"(c) DEFINITION OF SEWAGE SLUDGE.—For purposes of this section, the term 'sewage sludge' means any solid, semisolid, or liquid waste generated by a wastewater treatment plant.~~

~~"(d) PENALTIES.—~~

~~“(1) In lieu penalty.—In lieu of the maximum $50,000 civil penalty provided for under section 105(a), any person who dumps sewage sludge, or transports sewage sludge for the purpose of dumping, in violation of this section shall be liable for a civil penalty, to be assessed by the Administrator in accordance with section 105, of not less than $1,000, and not more than $2,000, for each dry ton of sewage sludge that is dumped, or transported for purposes of being dumped, into ocean waters.~~

~~“(2) Substantial compliance.—The Administrator may treat the substantial compliance of a permittee with the requirements of this section as full compliance, if the permittee can show that circumstances beyond the permittee’s control resulted in the permittee achieving less than full compliance.”.~~

~~SEC. 2. CONFORMING AMENDMENTS.~~

~~(a) Issuance of Permits for Ocean Dumping of Sewage Sludge.—Subsection (a) section 4 of Public Law 95–153 (33 U.S.C. 1412a) is amended by striking “December 31, 1981” and inserting in lieu thereof “December 31, 1992”.~~

~~(b) Definition of Sewage Sludge.—Paragraph (1) of section 4(d) of Public Law 95–153 (33 U.S.C. 1412a(d)) is amended to read as follows:~~

~~"(1) the term 'sewage sludge' means any solid, semisolid, or liquid waste generated by a wastewater treatment plant; and".~~

SECTION 1. ESTABLISHMENT OF FEES FOR OCEAN DUMPING OF SEWAGE SLUDGE

The Marine Protection, Research, and Sanctuaries Act of 1972 (33 U.S.C. 1401 et seq.) is amended by inserting after section 104A the following:

"SEC. 104B. OCEAN DISPOSAL OF MUNICIPAL SLUDGE.

"(a) SPECIAL DISPOSAL FEES FOR MUNICIPAL SLUDGE.—

"(1) IN GENERAL.—Notwithstanding any other provision of law, after December 31, 1988, no person (including a person described in section 104A(a)(1)(C) of this Act) shall dump, or transport for the purpose of dumping, sewage sludge from the United States into ocean waters, unless such person shall have obtained from the Administrator a permit which is issued pursuant to section 102 and which also imposes a special disposal fee of—

"(A) $100 for each dry ton (or equivalent) of sewage sludge dumped under the authority of that permit after December 31, 1988;

"(B) $150 for each dry ton (or equivalent) of sewage sludge dumped under the authority of that permit after July 31, 1989; and

"(C) $250 for each dry ton (or equivalent) of sewage sludge dumped under the authority of that permit after July 31, 1990.

"(2) PAYMENT OF FEES.—(A) If a permittee has not established a trust account in accordance with paragraph (3), or if such a trust account established by a permittee has been terminated under the provisions of paragraph (3)(C), fees imposed on such permittee pursuant to paragraph (1) shall be paid to the Administrator.

"(B) If a permittee has established a trust account in accordance with paragraph (3), the permittee—

"(i) shall deposit 85 percent of the fees imposed on the permittee pursuant to paragraph (1) into that account; and

"(ii) shall pay 15 percent of such fees to the Administrator, who shall use such fees as set forth in paragraph (4).

"(3) TRUST ACCOUNT.—(A) Each permittee under this section shall establish a trust account into

which the permittee shall deposit fees imposed pursuant to paragraph (1) of this subsection.

"(B) An account shall be a trust account for purposes of this subsection only if it meets, to the satisfaction of the Administrator, the following requirements:

"(i) Amounts in the account may be withdrawn only with the concurrence of the permittee and the Administrator.

"(ii) Amounts in the account may be expended only for projects which are consistent with the prohibition of subsection (b), and which will identify, develop, and implement—

"(I) long-term land-based alternatives to the disposal of sewage sludge by ocean dumping, including alternatives utilizing resource recovery, recycling, thermal reduction, or composting techniques; or

"(II) improvements in pretreatment, treatment, and storage techniques for sewage sludge to facilitate the implementation of such long-term alternatives.

"(C) The balance of the amounts in a trust account established under this paragraph shall revert and be paid to the Administrator, and the permittee shall terminate the account, upon a finding by the Adminis-

trator that the permittee did not deposit fees into the account as required by this paragraph, or did not expend amounts from the account in accordance with this paragraph.

"(4) USE OF FEES.—Of the 15 percent of total fees paid to the Administrator pursuant to paragraph (2)(B)(ii) of this subsection, subject to appropriation—

"(A) one-third of such amount shall be used by the Administrator—

"(i) for costs incurred or expected to be incurred, in undertaking activities directly associated with the issuance under this Act of permits for the transportation or dumping of sewage sludge, including an environmental assessment of the direct effects of dumping under the permits;

"(ii) to prepare reports required under paragraph (7); and

"(iii) to carry out such other research, studies, and projects the Administrator considers necessary for, and consistent with, the development and implementation of suitable land-based alternatives for the management of sewage sludge;

"(B) one-third of such amount shall be transferred by the Administrator to the Secretary of the department in which the Coast Guard is operating for use by the Secretary for—

"(i) Coast Guard surveillance of transportation and dumping of sewage sludge subject to this Act; and

"(ii) such enforcement activities conducted by the Coast Guard with respect to such transportation and dumping as may be necessary to ensure to the maximum extent practicable complete compliance with the requirements of this Act; and

"(C) one-third of such amount shall be transferred by the Administrator to the Under Secretary of Commerce for Oceans and Atmosphere of the National Oceanic and Atmospheric Administration for use by the Under Secretary in conducting monitoring and research regarding the effects of the dumping of sewage sludge into ocean waters, and in preparing annual reports to the Congress describing the results of such monitoring and research.

"(5) WAIVER OF FEES.—(A) Fees under this subsection may be waived by the Administrator with

respect to a permittee only if the permittee enters into a compliance agreement with the Administrator in accordance with this paragraph not later than December 31, 1988.

"(B) An agreement shall be a compliance agreement for purposes of this paragraph only if it includes the following:

"(i) A plan negotiated by the permittee and the Administrator that will, in the opinion of the Administrator, if adhered to by the permittee in good faith, result in the phasing out and eventual cessation by not later than December 31, 1992, of ocean dumping, and transportation for the purpose of ocean dumping, of sewage sludge by such permittee, through the design, construction, and full implementation of a system of land-based alternatives for the management of sewage sludge transported or dumped by the permittee.

"(ii) A schedule which—

"(I) in the opinion of the Administrator, specifies reasonable dates by which the permittee shall complete the various activities that are necessary for the timely implementation of the system referred to in clause (i); and

"(II) meets the requirements of subparagraph (C).

"(C) The schedule referred to in subparagraph (B)(ii) shall provide for, in addition to such other activities that the Administrator considers necessary or appropriate—

"(i) preparation of engineering designs and related specifications for such system;

"(ii) compliance with appropriate Federal, State, and local regulatory requirements;

"(iii) site and equipment acquisitions for such system;

"(iv) construction and testing of such system; and

"(v) operation of such system at full capacity.

"(6) PROGRESS REPORTS.—(A) Six months after the date of enactment of this Act, and annually not later than December 31 of 1989, 1990, 1991, and 1992, the Administrator shall prepare and submit to the Congress a report on—

"(i) progress being made by persons issued permits for transportation or dumping of sewage sludge under section 102 of the Marine Protection, Research, and Sanctuaries Act of 1972 in

developing and implementing land-based methods for managing sewage sludge; and

"(ii) progress being made toward the cessation of ocean dumping of sewage sludge.

"(B)(i) Each report submitted to the Congress under this paragraph shall be referred to each standing committee of the House of Representatives and of the Senate having jurisdiction over any part of the subject matter of the report.

"(ii) If the Administrator makes a finding in the final report submitted to the Congress under this paragraph that a permittee under this title cannot reasonably complete the cessation of ocean dumping of sewage sludge by December 31, 1992, each committee of the House of Representatives and of the Senate to which such report is referred—

"(I) shall hold hearings not later than 90 days after the date of the referral of the report to that committee regarding the findings of the report and appropriate action that should be taken to end ocean dumping of sewage sludge; and

"(II) shall issue a report not later than 270 days after that date which describes the findings and recommendations of the committee regarding such appropriate action.

"(b) PROHIBITION ON OCEAN DUMPING OF SEWAGE SLUDGE.—It shall be unlawful for any person to dump, or transport for the purpose of dumping, sewage sludge from the United States into ocean waters after December 31, 1992.

"(c) DEFINITION OF SEWAGE SLUDGE.—For purposes of this section, the term 'sewage sludge' means any solid, semisolid, or liquid waste generated by a wastewater treatment plant or a manufacturing or processing plant.

"(d) PENALTIES.—In lieu of the maximum $50,000 civil penalty provided for under section 105(a), any person who dumps sewage sludge, or transports sewage sludge for the purpose of dumping, in violation of this section shall be liable for a civil penalty, to be assessed by the Administrator in accordance with section 105, of not less than $1,000 and not more than $5,000, for each dry ton of sewage sludge that is dumped, or transported for purposes of being dumped, into ocean waters.".

SEC. 2. CONFORMING AMENDMENTS.

(a) ISSUANCE OF PERMITS FOR OCEAN DUMPING OF SEWAGE SLUDGE.—Subsection (a) of section 4 of Public Law 95-153 (33 U.S.C. 1412a) is amended by striking "December 31, 1981" and inserting in lieu thereof "December 31, 1992".

(b) Definition of Sewage Sludge.—Paragraph (1) of section 4(d) of Public Law 95–153 (33 U.S.C. 1412a(d)) is amended to read as follows:

"(1) the term 'sewage sludge' means any solid, semisolid, or liquid waste generated by a wastewater treatment plant or a manufacturing or processing plant; and".

SEC. 3. OCEAN DISCHARGES.

(a) Prohibition.—It shall be unlawful to discharge into the territorial sea, the waters of the contiguous zone, or the ocean after December 31, 1988, except in compliance with guidelines promulgated under section 403(c) of the Federal Water Pollution Control Act (33 U.S.C. 1343).

(b) Penalties.—Any person discharging in violation of this section shall be liable for a civil penalty to be assessed by the Administrator of not less than $1,000 and not more than $5,000 per dry ton or equivalent discharged for each violation.

OCEAN DUMPING OF MUNICIPAL SLUDGE

TUESDAY, AUGUST 2, 1988

House of Representatives,
Subcommittee on Water Resources,
Committee on Public Works and Transportation,
Washington, DC.

The subcommittee met, pursuant to call, at 10:00 a.m., in Room 2167, Rayburn House Office Building, Hon. Henry J. Nowak (chairman of the subcommittee) presiding.

Mr. Nowak. The hearing will begin. Please come to order.

H.R. 4338, a bill imposing fees on the ocean disposal of sewage sludge and prohibiting such disposal after December 31, 1992, was reported by the Committee on Merchant Marine and Fisheries on June 30, 1988. The reported bill was sequentially reported to the Committee on Public Works and Transportation for a period ending not later than August 5, 1988. If the bill is not reported, and the report filed, by that date, the committee is discharged from further consideration of the bill.

Title I of the Marine Protection, Research and Sanctuaries Act of 1972, commonly referred to as the Ocean Dumping Act, provides for the regulation of the dumping of materials into the ocean. Except as authorized by a permit issued pursuant to the Act, no persons may transport any material from the United States for the purpose of dumping it into ocean waters and no person may dump any material transported from a location outside the United States into the territorial sea, or into the 12-mile contiguous zone to the extent it will affect the territorial sea or the territory of the United States.

The Administrator of the Environmental Protection Agency regulates the dumping of materials other than dredged material. Dredged material is regulated by the Secretary of the Army.

The Administrator is authorized to issue permits for dumping where the Administrator determines that the dumping will not unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, and economic potentialities.

H.R. 4338, as introduced, related solely to the dumping of sewage sludge, defined as any solid, semi-solid or liquid waste generated by a wastewater treatment plant. The bill is the latest manifestation of a years-long controversy over the dumping of sewage sludge in areas of the North Atlantic Ocean off the coasts of New York and New Jersey by New York City and other New York and New Jersey municipalities. These are the only municipalities in the United States utilizing this method of sewage sludge disposal.

In 1977, the Ocean Dumping Act was amended to require EPA to terminate, by December 31, 1981, the dumping of sewage sludge and industrial waste that would unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, and economic potentialities.

In 1981, EPA decided to prohibit all dumping of sewage sludge after December 31, 1981, and was sued by New York City and other New York and New Jersey municipalities. The court overturned EPA's decision, holding that Congress had not intended to impose a total prohibition on all sludge dumping and that EPA must consider the costs and environmental impacts of land-based disposal alternatives, which it had not done.

The decision was not appealed. There are presently nine municipalities disposing of sewage sludge in the ocean. The sludge is being dumped at the 106-mile ocean waste dump site pursuant to an EPA decision in 1984 to terminate sludge dumping at the 12-mile site in the New York Bight, which was incorporated into law in section 1172 of the Water Resources Development Act of 1986.

The ocean disposal of sewage sludge has been, and continues to be, enormously controversial. It has been magnified by the recent publicity relating to ocean pollution generally and to specific problems in the New York and New Jersey coastal waters, Boston Harbor, San Francisco Bay, Albemarle Sound in North Carolina, and other areas.

At issue are the relative environmental and economic merits of ocean disposal and land-based alternatives, essentially incineration and composting and land disposal. H.R. 4338 would settle the matter by prohibiting all dumping of sewage sludge by the end of 1992.

The State of New Jersey recently enacted legislation prohibiting New Jersey authorities from disposing of sewage sludge in the ocean after 1991. The Senate Committee on Environment and Public Works has recently reported legislation, S. 2030, that would prohibit ocean disposal of sewage sludge after the end of 1991.

New York City recognizes that ocean disposal of sewage sludge must end. It maintains, however, that it is impossible to meet the dates in the House and Senate bills, and has proposed a phased schedule of a 50-percent reduction in ocean disposal by 1996, and 100 percent by 1999. The issue has shifted from "whether" to "when, and under what conditions."

Three basic questions are now presented: When should the ocean disposal stop? What, if any, fees should be charged for disposal in the meantime? And what penalties should be imposed if the deadline for ocean disposal is not met?

At today's hearing, we will receive testimony from members of the New York and New Jersey Congressional delegations, the Environmental Protection Agency, officials of the States of New York and New Jersey, and environmental and pollution control organizations.

Before hearing from our first witness, I yield to the distinguished ranking minority member of the subcommittee, Congressman Arlan Stangeland, for any opening remarks he wishes to make.

Mr. **Stangeland**. Thank you, Mr. Chairman.

First, I would yield to the ranking member of the full committee.

Mr. **Hammerschmidt**. Well, I thank my friend for yielding.

Mr. Chairman, I want to commend you for holding these hearings, for your leadership, as well as the leadership of the ranking member, Mr. Stangeland. I am not going to take the committee's time, because we have some very distinguished and important witnesses that are up before us first, and I am anxious to hear their testimony.

I would like to put my statement in the record at this point.

[The statement of Mr. Hammerschmidt follows:]

STATEMENT OF HONORABLE
JOHN PAUL HAMMERSCHMIDT
HEARING ON H.R. 4338
OCEAN DUMPING OF MUNICIPAL SLUDGE
WATER RESOURCES SUBCOMMITTEE
AUGUST 2, 1988

THANK YOU, MR. CHAIRMAN. YOU ARE TO BE COMMENDED FOR YOUR LEADERSHIP IN HOLDING TODAY'S HEARING ON H.R. 4338, WHICH AMENDS THE OCEAN DUMPING ACT TO IMPOSE SPECIAL FEES AND EVENTUALLY END THE OCEAN DISPOSAL OF SEWAGE SLUDGE.

THE MERCHANT MARINE AND FISHERIES COMMITTEE REPORTED THIS BILL ON JUNE 30TH, AND OUR COMMITTEE RECEIVED A SEQUENTIAL REFERRAL UNTIL AUGUST 5TH. IN ADDITION TO BEING TIMELY, TODAY'S HEARING WILL BE INVALUABLE TO UNDERSTANDING THE CURRENT SITUATION INVOLVING MUNICIPAL SLUDGE, OCEAN DUMPING AT THE "106 MILE SITE," AND OCEAN POLLUTION PROBLEMS GENERALLY.

MR. CHAIRMAN, LIKE SO MANY OTHERS, I AM CONCERNED ABOUT THE OVERALL HEALTH OF OUR OCEANS. RECENT REPORTS ON POLLUTION OF OUR COASTS AND ESTUARIES ARE ALARMING. CERTAINLY, WE NEED TO INCREASE OUR EFFORTS TO PROTECT THESE INVALUABLE ECOSYSTEMS. UNDOUBTEDLY, THIS COMMITTEE, WITH ITS JURISDICTION OVER THE OCEAN DUMPING ACT AND THE CLEAN WATER ACT, WILL BE LOOKING AT THE ISSUES CLOSELY.

BUT THE FOCUS OF TODAY'S HEARING IS ON THE OCEAN DUMPING OF MUNICIPAL SLUDGE. H.R. 4338 IS DIRECTED AT THE NINE NEW YORK AND NEW JERSEY MUNICIPALITIES THAT ONCE DUMPED THEIR SLUDGE AT THE 12 MILE NEW YORK SITE AND NOW DUMP AT A SITE 106 MILES FROM THE NEW YORK, NEW JERSEY, AND DELAWARE COASTS. THE NATION IS FOCUSING ON MEDICAL WASTES ON BEACHES, COMBINED SEWER OVERFLOWS, AND PIPELINE DISCHARGES INTO BAY AND COASTAL WATERS. THESE ARE ALL IMPORTANT ISSUES, BUT THEY APPEAR TO BE SEPARATE FROM THE ISSUES RAISED IN H.R. 4338.

TODAY'S WITNESSES SHOULD HELP PROVIDE NEEDED TECHNICAL AND SCIENTIFIC INFORMATION ON SLUDGE AND VARIOUS DISPOSAL OPTIONS. THROUGH THIS DIALOGUE, WE HOPE TO CRAFT AN ENVIRONMENTALLY SENSITIVE, YET SENSIBLE BILL. IN ADDITION TO DUMPING DEADLINES, WE WILL LOOK AT THE BILL'S PERMIT FEES, PENALTIES, APPLICATION TO PIPELINE DISCHARGES, AND INCENTIVES FOR THE DEVELOPMENT OF OTHER DISPOSAL OPTIONS.

WITH THAT, MR. CHAIRMAN, LET ME CLOSE SO WE CAN GET ON TO THE BUSINESS AT HAND.

Mr. **Stangeland.** I have a statement, and I would ask unanimous consent to have it put in in its entirety. I think today's hearing is very timely and very important. I would like to commend you for holding these hearings.

I applaud the proponents of H.R. 4338 for their hard work and good intentions. Our oceans, coasts and estuaries are facing pollution problems of crisis proportions. We know it, and the whole country knows it.

Now, Mr. Chairman, we must forge solutions directed at the actual problems based on proven science. I have specific concerns about H.R. 4338's provisions on dumping deadlines, permit fees, penalties, and application to industrial sludge and pipeline discharges. With their technical expertise, today's witnesses should help shed light on these controversial issues involving specific provisions.

Part of my concern, however, involves the basic thrust of the bill. Are we making the best public policy if we totally ban any ocean dumping or disposal? Do we want to preclude all present or future ocean disposal methods such as incineration of non-hazardous waste?

I think this is a far-reaching piece of legislation, but I think it is something that has to be looked at. There is a great deal of concern, concern on the part of those people who have a great deal at stake in tourism on our shorelines, both in New Jersey and New York, and I commend you for holding the hearing, and I hope that we can resolve this in a very responsible fashion.

Thank you.

[Mr. Stangeland's prepared statement follows:]

OPENING STATEMENT OF HONORABLE
ARLAN STANGELAND
HEARING ON H.R. 4338
OCEAN DUMPING OF MUNICIPAL SLUDGE
WATER RESOURCES SUBCOMMITTEE
AUGUST 2, 1988

THANK YOU, MR. CHAIRMAN. I WANT TO COMMEND YOU FOR YOUR LEADERSHIP IN HOLDING TODAY'S HEARING. IT IS EXTREMELY IMPORTANT AND TIMELY.

THE BILL BEFORE US, H.R. 4338, AMENDS THE OCEAN DUMPING ACT. THE MERCHANT MARINE AND FISHERIES COMMITTEE REPORTED THE BILL ON JUNE 30, 1988, AND THE PUBLIC WORKS AND TRANSPORTATION COMMITTEE RECEIVED A SEQUENTIAL REFERRAL UNTIL AUGUST 5, 1988. AS IN THE PAST, THE SUBCOMMITTEE AND THE FULL COMMITTEE PLAN TO PLAY A MAJOR ROLE IN THE DEVELOPMENT OF LEGISLATION INVOLVING THE OCEAN DUMPING ACT, THE CLEAN WATER ACT, AND COASTAL AND OCEAN POLLUTION GENERALLY.

H.R. 4338, IF ENACTED IN ITS CURRENT FORM, WOULD MAKE SUBSTANTIAL CHANGES TO EPA'S REGULATION OF MUNICIPAL SLUDGE DUMPING. H.R. 4338 IS DIRECTED AT THE NINE NEW YORK AND NEW JERSEY MUNICIPALITIES THAT NOW DUMP THEIR MUNICIPAL SLUDGE AT THE "106 MILE SITE." THE BILL WOULD IMPOSE AN ABSOLUTE BAN ON ANY SLUDGE DUMPING -- WHETHER HARMFUL OR NOT -- AFTER DECEMBER 31, 1992. IN EFFECT, H.R. 4338 WOULD REPEAL THE 1985 CASE, NEW YORK CITY VS. EPA, WHICH REAFFIRMED THE OCEAN DUMPING ACT'S STANDARD OF "UNREASONABLE DEGRADATION" FOR ISSUING PERMITS. IN THE MEANTIME, IT WOULD IMPOSE SPECIAL PERMIT REQUIREMENTS AND COSTLY FEES ON THE NINE MUNICIPALITIES IN ORDER TO ENCOURAGE LAND BASED DISPOSAL METHODS. VIOLATORS OF THE NEW REQUIREMENTS WOULD FACE HEAVY PENALTIES.

THE SCOPE OF H.R. 4338 WOULD EXTEND FAR BEYOND MUNICIPAL SLUDGE AND THE OCEAN DUMPING ACT. IT CREATES A NEW DEFINITION FOR MUNICIPAL SLUDGE -- ONE THAT INCLUDES INDUSTRIAL SLUDGE AND WASTE. IT ALSO SPEAKS TO THE CLEAN WATER ACT. SECTION 3 OF THE BILL WOULD PROHIBIT ANY OCEAN DISCHARGE FROM A PIPELINE IF THE DISCHARGE DID NOT MEET EPA'S OCEAN DISCHARGE CRITERIA UNDER SECTION 403(C) OF THE CLEAN WATER ACT.

MR. CHAIRMAN, I APPLAUD THE PROPONENTS OF H.R. 4338 FOR THEIR HARD WORK AND GOOD INTENTIONS. OUR OCEANS, COASTS, AND ESTUARIES ARE FACING POLLUTION PROBLEMS OF CRISIS PROPORTIONS. WE KNOW IT AND THE WHOLE COUNTRY KNOWS IT. NOW WE NEED SOLUTIONS. BUT MR. CHAIRMAN, WE MUST FORGE SOLUTIONS DIRECTED AT THE ACTUAL PROBLEMS AND BASED ON PROVEN SCIENCE. I HAVE SPECIFIC CONCERNS ABOUT H.R. 4338'S PROVISIONS ON DUMPING DEADLINES, PERMIT FEES, PENALTIES, AND APPLICATION TO INDUSTRIAL SLUDGE AND PIPELINE DISCHARGES. WITH THEIR TECHNICAL EXPERTISE, TODAY'S WITNESSES SHOULD HELP SHED LIGHT ON THESE CONTROVERSIAL ISSUES INVOLVING SPECIFIC PROVISIONS.

PART OF MY CONCERN, HOWEVER, INVOLVES THE BASIC THRUST OF THE BILL. ARE WE MAKING THE BEST PUBLIC POLICY IF WE TOTALLY BAN ANY OCEAN DUMPING OR DISPOSAL? DO WE WANT TO PRECLUDE ALL PRESENT OR FUTURE OCEAN DISPOSAL METHODS SUCH AS INCINERATION OF NON HAZARDOUS WASTE?

SOME HAVE SAID WE WILL BE SHOOTING OURSELVES IN THE FOOT IF WE NARROW OUR ALREADY LIMITED DISPOSAL OPTIONS. BY ELIMINATING CONSIDERATION OF THE OCEANS AS ONE ALTERNATIVE, WILL WE BE SUBJECTING OURSELVES TO GREATER RISK FROM LANDFILLING, LAND-BASED INCINERATION, AND OTHER DISPOSAL METHODS? CAN WE BE ASSURED THAT ALTERNATIVE DISPOSAL METHODS WILL BE DEVELOPED? WILL THEY BE ECONOMICALLY JUSTIFIED AND ENVIRONMENTALLY ACCEPTABLE?

MR. CHAIRMAN, WE MUST STRIVE FOR A MULTI-MEDIA APPROACH TO ENVIRONMENTAL PROTECTION. AS THE NATION FOCUSES ITS ATTENTION ON OCEANS, MEDICAL WASTE, AND BEACHES, WE MUST NOT LOSE SIGHT OF OUR GROUND WATER, ESTUARIES, INLAND WATERS, LAND AND AIR. HOW ARE WE GOING TO DEAL WITH ALL THIS SLUDGE? WHERE ARE WE GOING TO PUT IT?

I DON'T EXPECT ANSWERS TO THESE DIFFICULT QUESTIONS, AT LEAST NOT TODAY. BUT OUR HEARING SHOULD HELP US FOCUS ON THE REALLY TOUGH ISSUES CONTEMPLATED BY THIS BILL. SPECIFICALLY, WE NEED TO KNOW WHETHER AND TO WHAT EXTENT SLUDGE DUMPING AT THE 106 MILE SITE IS HARMFUL TO THE ENVIRONMENT, WHETHER THE BILL'S DEADLINES, FEES AND PENALTIES ARE REALISTIC, AND WHETHER A TOTAL BAN ON OCEAN DISPOSAL WILL LEAD TO EVEN GREATER ENVIRONMENTAL RISKS IN OTHER AREAS.

WITH THAT, MR. CHAIRMAN, LET ME CLOSE SO OTHER MEMBERS OF THIS SUBCOMMITTEE, PARTICULARLY THOSE WHO ARE DIRECTLY IMPACTED BY THIS LEGISLATION, HAVE AMPLE OPPORTUNITY TO COMMENT.

Mr. NOWAK. Thank you very much.

I would now turn to Bob Roe, who is chairman of the subcommittee.

Mr. ROE. I thank the distinguished chairman for recognizing me, and I want to also join with our other members in complimenting you in holding this hearing. I would like to ask unanimous consent to put my statement in the record.

Mr. NOWAK. Without objection.

Mr. ROE. I hope we can look this at it without making predeterminations as the distinguished Members of the Congress and the Senate, our friends are here. New Jersey has passed legislation requiring New Jersey to get out of the ocean by 1992, and I believe that our witnesses will be testifying to that effect and from our point of view, and without prejudging the direction, that we are going to be emphasizing pre-treatment to removing the contaminants from the sludge, et cetera, and look for land disposal.

I think it is important to point out that the shore tourist resort business, which was championed by Jim Howard in the protection of the shore is particularly important to the State of New Jersey. I believe the estimated revenue is somewhere around $12 billion a year, as far as business is concerned, and that is already down about one-third already this year from the problems we are having, not all from the sewage sludge, it is from other wastes, as you know.

So, we are extremely concerned about this for the health of our people. And let me say this, which might be unpopular. This is nothing new, we have been talking about this for 20 years, and it is time we got something done. So, without further ado, Mr. Chairman, I want to thank you for letting me make my presentation and welcome our guests.

[The statement of Mr. Roe follows:]

STATEMENT OF REPRESENTATIVE ROBERT A. ROE

Mr. Chairman, I want to thank you for holding this hearing during the short time the Committee has to consider H.R. 4338. It is important that all viewpoints are heard so the Committee can make an informed decision.

The ocean disposal of sewage sludge is an issue that I have lived with for years, on the local and state levels as well as the federal level. It's an issue that has been a matter of controversy in our region of the Northeast for almost two decades. H.R. 4338 allows ocean dumping of sludge to continue until Dec. 31, 1992, a full 20 years since scientists coined the term "Dead Sea" to describe the area around the sludge dump site in the New York Bight and more than 21 months after the New Jersey state law requires its authorities to stop ocean dumping.

Some people have said that ocean dumping can't be ended by 1992 because there just isn't enough time. We're going to do it in New Jersey and our Legislature told the sewage authorities how to do it. The emphasis will be pretreatment to remove the contaminants from the sludge. In New Jersey, the authorities, with the Department of Environmental Protection, must develop a pretreatment program to have all the state's sludge meet land disposal requirements.

The number one industry in the State of New Jersey is tourism. Last year, it was a $12 billion business for the state and for our people. This year, our resorts are dying. It's the middle of the summer and the beaches are empty, the motels are vacant and restaurants have no customers. Business is down 70 percent. New Jersey is losing millions of dollars because people are afraid of the oceans. We are not alone. Long Island and New England have the same problem.

Of course, sewage sludge dumping is not solely responsible for the problems at the beaches. There is a general public revulsion to the medical waste, the sewage discharge and the polluted run-off. Even with those other problems, sludge dumping remains a major factor in the loss of public confidence in our resort areas. The public is looking to us to take action to protect their beaches and this is our chance.

The New Jersey delegation has a long-standing commitment to protect the oceans and the shore as championed by our former Chairman, Jim Howard. The bill will protect the water, the beaches and the people of his beloved New Jersey Shore and help its economy start on the road back.

I am pleased to welcome all of our witnesses but especially my colleagues from New Jersey, including our distinguished senator, Frank Lautenberg, who has been an outstanding leader in this field.

Mr. Nowak. I thank the gentleman.

We will now turn to Guy Molinari, the Congressman from New York.

Mr. Molinari. Thank you, Mr. Chairman. I would like to briefly raise some questions that I think need to be made. I certainly am not here to carry a brief for the City of New York. We talked about Jim Howard. Some years ago, he had a hearing in Asbury Park. At that point, the question was the advisability of moving a dump site from the 12-mile site to the 106-mile site.

I have some deep concerns, and particularly based on what I have heard so far, that we may be moving rather precipitously here. We know that our shorelines in New York, New Jersey, Connecticut, and Massachusetts have been besieged with a whole variety of environmental disasters.

The one we are talking about here, however, is dealing with the dumping of sludge in the ocean. The concerns that I have are, number one, some of the questions raised by the municipalities in New York that, in fact, they cannot meet the deadlines enacted by the New Jersey Legislature and signed into law by Governor Kean.

And secondly, the very important issue of alternatives. What do we do with the sludge, if it is not dumped at the 106-mile site? There is scientific evidence indicating that the sludge is not being carried into New Jersey shores or other shores, but the currents are carrying them in a roundabout way, and then back out to sea.

I have concerns that we have just started dumping on January 1st of this year, and that perhaps we have not allowed adequate tests in order to make a full-fledged determination as to what we should be doing.

And then I have parochial concerns, and one that I think should be shared by my brethren from New Jersey. The court decision referred to today talks about spreading materials on ground cover and fill on various land sites throughout the City, and then they went on to say that EPA claimed that, in fact, there was likely to be land fills or garbage dumps.

I say to my colleague, there is their own garbage dump, the one you have been having trouble with. The one on Staten Island. You now receive an awful lot of debris and garbage, which you shouldn't, from that garbage dump.

If the City of New York is pushed to dump its sludge on land, it will be without question, that garbage dump. And I would suggest, and I have a map that I will show later, that instead of 106 miles out from the Jersey shore, heavy rains we had last week and the runoffs, you are only going to be three, four, five miles.

And that is something that should be considered. We may be creating a worse problem, and I think we have to deal with this issue very carefully. I am in favor of—that doesn't like to see anything dumped in the ocean. I can say that, and I know it is very popular, but I am also concerned about the alternatives, and I think we must look at them very carefully so we don't think we are doing something good and find out we are making a very, very serious mistake.

Thank you, Mr. Chairman.

Mr. APPLEGATE. I want to commend you for holding these hearings on what has to be considered the most serious violations of the environment that we have today, and they are very glaring examples of the seriousness of this, and we see this most recently on television and in the newspapers. But there is a concern as to how far we can go, what we can do, and we share Mr. Molinari's concern in that.

But something certainly has to be done. I do not have the answer to that. I am sure we have some better expertise than I can offer. Surely in this great country of ours, with all of the technology at our hands, all the brilliant minds that we have, that some solution can be found. We certainly can't continue to live in a Neanderthal world where we don't know what to do with our waste.

And one of the things that they continue to do is dig hold and bury it. And I am sure that that, too, is not the answer. And I know that there will be tremendous costs involved in order to be able to come up with these solutions. But somehow, I am sure that we will somehow. We must if we are going to protect the future for our future generations.

Thank you, Mr. Chairman.

Mr. NOWAK. Thank you for your statement.

And we now turn to Mrs. Bentley from Maryland.

Mrs. BENTLEY. I want to commend you and Mr. Stangeland for having this hearing today on what has already been described as a very vital issue, one that has already been acted upon by the Merchant Marine and Fisheries Committee, where all of us expressed our concern there, as well as here, about what is happening to our shorelines and the materials washing up on the shore.

But as Mr. Molinari pointed out, we do have to look at the entire picture of ocean dumping and the alternatives to make certain that we are not creating more problems, and that is why this hearing is so very vital.

Mr. NOWAK. Thank you very much.

Mr. Valentine?

Mr. VALENTINE. Mr. Chairman, I join with my colleagues in expressing appreciation for arranging for these hearings, and I would like to associate myself with the chairman's remarks.

Mr. NOWAK. Mr. Hastert.

Mr. HASTERT. This summer, I had the pleasure of having my family out at the New Jersey shore for about 10 days, and the water seemed to be pristine and clean. But all the time this has been going on, there has been a practice of dumping offshore garbage?

The whole idea of garbage dumping, and sludge dumping needs to be addressed by the whole Congress. We certainly applaud the actions of the chairman and the ranking member in bringing this issue before this subcommittee, so that we can start to put some things together so we can have some results.

Thank you, Mr. Chairman.

Mr. NOWAK. Thank you.

We turn to Congresswoman Slaughter from New York.

Ms. SLAUGHTER. Mr. Chairman, the eyes of the whole Nation have turned to the condition of the oceans this year, and this summer particularly, with the problems of what has been happening at the beaches in our part of the country. But there aren't going to be any simple answers to it. It will be very difficult, and I would like to ask unanimous consent to insert in the record a more detailed statement.

Mr. NOWAK. Without objection.

[Ms. Slaughter's prepared statement follows:]

STATEMENT OF LOUISE M. SLAUGHTER

Thank you Mr. Chairman. Mr. Chairman, the eyes of the whole Nation have focused this year on the condition of the oceans, in large part because what has been happening this summer at the beaches in our part of the country.

We know, however, that there will be no easy answers to the problem of ocean disposal. I commend you Mr. Chairman, for your leadership in holding these hearings so that we can explore the tough questions which present themselves on this issue.

I support efforts to eliminate ocean disposal of sewage sludge as expeditiously as possible. However, the lack of land based and other alternatives to ocean disposal in the New York City metropolitan area has necessitated the disposal of fully 42 percent of New York State's sludge in the ocean. Much of the available evidence we have seen so far suggests that realistic alternatives to ocean disposal may not be available before the proposed December 31, 1992 deadline.

My concern is that if Congress mandates a deadline that is not realistic, there may be a rush to utilize alternatives which may be ill-considered, such as disposal of the sludge in upstate New York. Yes, we need to halt ocean disposal as soon as is practicable; but we must be sure that all of the economic and environmental consequences to alternative disposal methods are carefully examined. I look forward to exploring these issues in these hearings.

Thank you Mr. Chairman.

Mr. NOWAK. We have received for the record a statement from Congressman Dean Gallo of New Jersey. It will be included in the recorded at this point.

[Mr. Gallo's statement follows:]

STATEMENT BY REPRESENTATIVE DEAN GALLO

Mr. Chairman: Thank you for providing me with this opportunity to support legislation to ban, once and for all, the dumping of sewage sludge in our oceans. As an original cosponsor of the legislation that is the subject of this hearing (H.R. 4338), I am committed to timely Congressional action.

As one of my distinguished colleagues has observed, the eyes of the nation are upon us today. We have a responsibility to ourselves, to our children and to their children to stop this dangerous dumping and to protect our valuable shoreline as a natural resource that will renew itself, if we will allow it to do so.

For too long, we have repeated the familiar cycle of delays and have taken halfway measures when nothing less than a total ban would solve the problem. In the past, Congress has passed laws that contained timetables for change, only to have them overturned in our courts.

In 1983, during a similar fight in Congress over the location of the dumping site and the eventually phaseout of all dumping, I fought as Republican Leader in the New Jersey Assembly for action that would have set some realistic timetable for a sludge dumping ban. New Jersey has taken the lead in this area, with a state law that bans all ocean dumping of sewage sludge by March of 1991.

At the time of the earlier debate, I was very disturbed by reports that I was getting from one of my colleagues, Assemblyman Anthony Villane, of Monmouth County, who toured the 12-mile site by boat. His report of cloudy, contaminated surface water and algea blooms convinced me that no ocean dumping site—not at 12 miles or 106 miles—would ever be acceptable as a permanent solution. We needed a timetable for phaseout of all sludge dumping.

But the courts ruled and delays were put in place and we had to wait another five years for our worst fears to become reality. We know now that this dumping must stop—not only in New Jersey, but in New York and Massachusetts as well. We must have a national policy and it must be applied equally to everyone.

I believe that this legislation should be followed in short order by legislation to require stricter requirements for the safe disposal of all medical wastes. Ending legal dumping and prosecuting illegal dumpers are equally essential elements in our efforts to protect the New Jersey shore.

In support of our mutual goal—a cleaner and safer environment along our shoreline—I would like to see actions speak louder than words. We have had thousands of words on this problem, now we need to work together to solve this problem once and for all.

This legislation has been carefully crafted to provide for that action and I urge my colleagues to support this bill and ban sludge dumping once and for all.

Mr. NOWAK. If there are no further requests for opening statements, we will now turn to our first panel, which consists of Members of the Congress, and with the author of the Senate S. 2030, Senator Frank Lautenberg, who is, has been a leader and has spent much time and energy on this subject, as it is very important to his State.

Senator, welcome before the committee. It is a privilege to have you here.

TESTIMONY OF HON. FRANK R. LAUTENBERG, A U.S. SENATOR FROM THE STATE OF NEW JERSEY

Senator LAUTENBERG. Thank you very much, Mr. Chairman, and members of the committee. I appreciate the opportunity to testify about ending the ocean dumping of sewage sludge.

I was interested in my colleagues' comments, particularly those of my friend and my own Congressman, Congressman Roe. And a good friend from across the river, Congressman Molinari. I know that with the tenacity with which Mr. Molinari fights that sludge dumpers are going to have a heck of a time using Staten Island as a dump of last resort. I know I can count on him and his good judgment to make sure that the sludge doesn't get any closer to the New Jersey coast.

It is unfortunate that today's hearing and the legislation you are considering is necessary. In 1977, Congress adopted Congressman Hughes' amendment to establish a 1981 deadline for ending ocean dumping of sewage sludge.

In 1979, at a hearing held by the Merchant Marine and Fisheries Committee, New York City Mayor Ed Koch said that the City could meet a 1981 deadline with interim measures, and would have a long-term land-based alternative to ocean dumping by the end of 1987.

Mind you, he said that it could end in 1981. Yet, today, we have no deadline, no interim or long-term land-based alternatives and no plan to end ocean dumping. How did this happen? It happened because we have an EPA which, during the last eight years, has earned the title, the Environmental Procrastination Agency. They didn't even bother appealing the court decision overturning the 1981 deadline.

It took them four years to make a final decision to close the 12-mile dump site. It took two and a half years more to actually close the site. Since 1981, all EPA has to show for itself is moving the dump site.

This year, roughly 60 percent more sewage sludge will be dumped in the ocean than in 1973, 15 years ago, the first full year that the Ocean Dumping Act was in effect. And since the 1981 deadline, dumpers have dumped enough sewage sludge to fill over 50 towers the size of the World Trade Center Tower.

What about the ending of sludge dumping? Well, in July of 1986, EPA asked the dumpers to submit permit applications. It is now two years later, and EPA hasn't even proposed action on the permits, yet alone requiring the dumpers to implement a plan to end dumping.

Eleven days ago, Vice President Bush came to New Jersey and said that EPA was working to end the ocean dumping of sewage sludge. Mr. Chairman, New Jersey citizens and other citizens of Atlantic Coast States would be better off if the Vice President went to Waterside Mall and told the EPA leadership to get on the ball and act to stop the dumping.

It is clear that we cannot count on EPA. We need a firm deadline in the law to end the ocean dumping of sewage sludge. Only then will alternatives be put into place, and only then will the dumping be stopped. That is why I introduced the Ocean Dumping Reform Act of 1988. It sets December 31, 1991, as the deadline to end ocean dumping of sewage sludge, once and for all.

This bill, which now has seven other co-sponsors, passed the Senate Environment Committee on June 23rd, and I am optimistic that it will soon reach the Senate Floor.

At the Senate hearings which I chaired earlier this year, we heard clear and uncontroverted evidence that land-based alternatives for the sludge dumping exist. In fact, according to EPA, 94 percent of all the sewage sludge generated in the United States is disposed of on land. Just a few weeks ago, Governor Kean signed into law a bill requiring New Jersey sludge dumpers to stop ocean dumping by March 1991.

Sludge dumping at the 106-mile site involves significant risk. Sludge dumping contributed to the environmental degradation and the New York Apex, sludge dumping at the site contains the same microorganisms which degrade the area around the old dump site. Since dumping at the 106-mile site began in full force, last year, fishermen have complained already of lower catches, and increases in diseased fish.

And the resources we are talking about are significant. According to the National Marine Fisheries Service, the dumped waste could affect an area 116,000 square kilometers, from New Jersey and North Carolina.

The fish and shellfish make up a large portion of the commercial and recreational fisheries which contribute $1 billion a year to coastal Atlantic States.

Mr. Chairman, ocean dumping of sewage sludge represents a throwaway approach to waste disposal which we rejected a long time ago. Ocean dumping of sewage sludge is the least appropriate form of waste management. We won't know all the harm done by ocean dumping sewage sludge until it is too late, and then there is no way to clean it up. The oceans are resources that belong to all of us, residents, tourists, business people whose livelihood depends on a clean ocean, commercial and recreational; fishermen up and down the East Coast who depend on the ocean's productive fishery resources; and most importantly, to future generations who will inherit the environment we live in.

Ending the dumping in the waters of New Jersey and New York is essential. We must preserve for those who use the ocean and for those who will use it in the future. We can't identify the precise source of the medical and infectious waste that have deluged our shores, but we know that we have to stop viewing the ocean as a last major dump site in our globe.

We hope that you will act favorably on this legislation. And I would ask the indulgence of my colleagues here at the table if they would permit that I leave now, because we have a supplemental appropriations mark-up in the Senate going on right now.

Mr. NOWAK. Senator, pursuant to that request, we certainly wouldn't want to keep you from your Senate business. If I may just, looking at the differences between the House Merchant Marine approach and the Senate 2030, you have different deadlines.

You have different penalties, you have different fees. And I wonder if you could shed some light on the differences? First of all, as you know, New York maintains that they would have a more difficult time siting, if you will, the alternatives, whether they be incineration or disposal of waste than New Jersey does. And you have set a date of December 31, 1991, in the Merchant Marine bill, extending that one more year to 1992.

I wonder if you have an opinion if you thought there would be great harm extending to that date, or, as you know, New York is looking at a longer period because of the possibility of lawsuits and so forth.

Senator LAUTENBERG. I appreciate the question, Mr. Chairman. As we have noted in the testimony and the statements of your colleagues on the subcommittee, there is a law now in New Jersey that calls for a March 17th deadline for the ending of ocean dumping in 1991. We have six major sewage authorities that use the ocean for sewage sludge dumping, and it is an enormous problem for them. And they are already pleading for an extension.

Mr. Chairman, I think all of us here have learned over the years that unless you put a serious target, a serious deadline on an action that you want to take, nothing happens. I have too much respect for my colleagues on this side, and especially Bill Hughes, with whom I am good friends and with whom I share a common agenda very often, to argue at this point whether 1992 is a more appropriate date than 1991. I think the sooner we get on with this task, the better off we will be. Since over 100 communities have found a way to deal with ocean—with sewage sludge beside ocean dumping, I think it is fair to say that if we put the pressure on, the remaining dumpers will find the way as well.

Mr. NOWAK. So that New York members, Senator, have also mentioned also the difference in penalties where the Senate bill talks in terms of $40 per wet ton, if the terms of the bill are not met, the House bill has $1,000 to 500—to $5,000 penalty per dry ton. And if you equivocate those out, we see that in the Senate bill, that would be 4 to $800, which they brought to my attention is way over, you know, what the alternative cost to get out of the ocean.

I am wondering if those penalties, as were told to me, were almost punitive in nature, and if we shouldn't have a better balance of penalties so we would still have an incentive to get out, but not a drastic penalty hanging over either New Jersey or New York, so much so that the other alternative would be to challenge this in court, as they did in 1981, somewhat successfully, at least they obtained the delay in the District Federal Court.

You can comment as to the appropriateness of that penalty. Was that your intention of the lower penalty? To give the incentive, but not to have someone declare this as punitive?

Senator **LAUTENBERG**. Mr. Chairman, obviously the penalty has to be a deterrent, but we don't want to just hang the guillotine over the heads of the communities or authorities that have responsibility for finding an alternative. We want to make it appealing to them to find an alternative. They are not going to be paying any penalties if they come up with a specific agreement for ending the dumping, and meet the deadline.

We want to move this thing along, and again, I am struck by Mayor Koch's statement of 1979. He said that New York City could end the dumping altogether by 1981. We would just ask the Mayor to remember what it was like then. He said he was going to solve the problem then. He should do it now.

Mr. **NOWAK**. Well, everybody, I guess, when they sit on different sides of the fence, have a different outlook as to the appropriateness of a penalty. I just want to bring to the attention, we had run some numbers and the penalty, if it ever were assessed, and we know there are pre-conditions to that, but if it were ever assessed, the $5,000 per dry ton would come to about $700 million per year for New York City, which is pretty heavy, considering the alternative.

Let me also—one other factor. We talk about the New Jersey law, and I have looked at that and tried to analyze, you know, the impact of that. If nothing was passed here and New York went ahead, and of course you have a law that brings them out of the ocean by 1991, the March date, but I could not determine what would happen to the violators if for some reason that deadline was not met by the six New Jersey disposal companies.

I wonder if you could tell us what the motivation would be or what the penalty would be if New Jersey did not do anything? Or would they merely go back to the legislature for some appropriate sanction?

Senator **LAUTENBERG**. Mr. Chairman, I regret to say that I don't know what the penalty program is in the legislation in our State. But I have enough confidence that through our bipartisan legislature, the upper chamber and the lower, each one controlled by a different party, that this had the full bipartisan support required to get sensible legislation through, and I would be happy to provide for the record the report on the penalties and the structure of the New Jersey bill. I just don't know it.

I assume it is realistic enough to say that they are going to present something that can be dealt with.

Mr. NOWAK. Well, we will certainly have the opportunity to ask the New Jersey people when they come here. But it is my understanding that there are no, you know, defined sanctions in the bill. But you know—so we will have even a larger variation from the State and Federal legislation if the full force of the penalty in the House bill were written, and your bill, of course, comes somewhere in between, which would provide hopefully an incentive, but not the punitive.

I want to thank you for your appearance. Let me now turn to Mr. Stangeland, our ranking minority member. I might just say that I know the Senator is pressed for time. I just want to bring out the major differences and hopefully, our other members will understand that you have a schedule and will keep their presentations to five minutes.

Mr. STANGELAND. Thank you, Mr. Chairman.

Thank you for your testimony, and your concern. I can understand, well understand the concern of New Jersey people and many in New York, as well as with the problems on your beaches and the problems with the fisheries.

I hope that we can come to some responsible regulation. I have no questions. Thank you.

Mr. NOWAK. The Congressman from New Jersey.

Mr. ROE. No questions.

Mr. NOWAK. May I turn to Congressman Hammerschmidt?

Mr. HAMMERSCHMIDT. Thank you.

Mr. NOWAK. Thank you for your waiver. Congressman Molinari?

Mr. MOLINARI. Yes, I do have a couple of questions.

Frank, my recollection is that some of the New Jersey municipalities, when faced with the new law that was passed recently, some of the sewage commissioners said it is virtually impossible to meet the date. They will not be able to meet the date.

They are going to just sit back. They will try to do what they can in implementing the plan, but the date is just one that cannot be complied with, and they are going to be faced with fines, and they will sit back, and until that point in time—I assume that you have talked to them about this? Do you believe that what they are saying is so, and if so, what are we doing to them?

Senator LAUTENBERG. We have had testimony, as a matter of fact, in front of my subcommittee from a couple of the authorities, one notable one is the Passiac Valley Sewage Authority, if not the largest, then one of the largest in the State of New Jersey. The authority is searching very arduously for ways to try to meet the deadline. The authority says at this juncture that it can't.

I will tell you this, that it would be my view without being too specific about the New Jersey law that was enacted, that the bill we are talking about is designed to stimulate an opportunity for regulations for a serious program that I think could obviate the penalties we are talking about here. My bill is designed to develop that opening for negotiations, so that what we might wind up with is a schedule to achieve the deadline in place. I am not able to tell you how that might work, but that it will happen.

Mr. MOLINARI. I want to move along fast, because I know of your time constraint. In testimony that we are going to hear from Senator Frank Pallone, he talks about banning of ocean dumping, and

Congressman Hughes mentioned starting back in 1977. And then he goes on to say, in fact, you can even say the clock started ticking in 1936, when the Interstate Sanitation Commission was established by court decree to protect the ocean and seashore communities from this kind of degradation.

I know they did a fine job in attempting to meet that problem with very limited resources, and in fact we passed the bill, and Congressman Roe and Congressman Howard fought hard to not only preserve the Interstate Sanitation Commission, but to give them more resources so they could do the job we are talking about today, and yet, my understanding now is that Senator Moynihan and others, the State Department of Environmental Conservation in New York, and companion State Commissions in your State, are out to put the Interstate Commission out of business; very, very important to New York, but more so to New Jersey with respect to water quality.

I don't understand that. I welcome you comments on that aspect.

Senator LAUTENBERG. Well, the problems now that we face are so urgent that I think there may be an attempt to by-pass some organizations. I can't really comment on whether the Interstate Sanitation Commission or any of these agencies are able to do the job they want, and respond to the critical questions.

When we look at the situation now you see problems in your community, you see problems in your State. We see problems in our State. We see a devastating effect from polluting the ocean. Whatever the source of that is, it is wiping out income. It is wiping out investments. It is wiping out hopes and aspirations.

The questions dealing with the specific problems must be answered immediately. I don't see it as an attempt to rewrite the structure of the bi-State agreement. This is something that we need to look at in the future.

I have been trying to work, and I must say this, that Senator Moynihan and Senator D'Amato have been very cooperative in trying to deal with this specific problem. Yes, they disagree with me on the deadline, but they both agree wholeheartedly on the problem of coastal pollution. This is especially true, since from Fire Island to Long Island, New Yorkers have seen this junk wash up on the beaches, and they, too, have been subjected to the problems that are created by sludge dumping.

You can't just zero in on New Jersey and say this is where the problem is. So, there is a cooperative effort being now recognized and worked on to try to deal with these things in a sensible way.

By the way, Congressman Hughes gave me a note that says that the New Jersey penalties in the sludge deadline bill is $50,000 a day in violation of the dumping law.

Mr. MOLINARI. I have one last comment, Frank, since you are such an important player in what we are doing here, somebody who represents an area like Staten Island, a part of Brooklyn, we are buffeted on a daily basis with very serious episodes of air pollution problems that emanate from your State, the State of New Jersey.

Today we are discussing stopping of dumping of ocean sludge, particularly New York because you have already taken steps in New Jersey, so the thrust is New York.

I would like to make a deal with you. And I think we can. I say it somewhat facetiously, but at the same time with a note of seriousness, because it is something that is very, very serious to me.

I think we have lost quite a few people as a result of the serious air pollution problem. I would like to work together with the people at the table there I have immense respect for, to see if we cannot come up with a sensible solution for stopping ocean dumping of all kinds.

By the same token, we shouldn't stop there. This problem of air pollution and some of the serious episodes that we have suffered from because the prevailing winds come from New Jersey to New York, if we are going to look at pollution, we should look at pollution in every respect, and that is something that I would welcome your input on.

If we could come up with a companion bill that would offer us some protection from the stuff that we breathe, whether we like it or not, I would certainly welcome an effort along those lines.

Senator LAUTENBERG. Congressman, we have in the Senate, through the Environment Committee, passed the Clean Air Act that would take care of the transport of air pollutants. As you know, New Jersey is a tiny State, wealthy and intelligent albeit, but the winds blow very rapidly across our State, headed east. And we are more the subject than the reason for so much of the pollution that you and we experience.

We have worked very hard in the State of New Jersey to try and control air pollution, but it is an impossible thing to do unless we erect some kind of a barrier between us and the west. I would like very much to work with you, because each one of our communities is subjected to the same ravages that air pollution creates. It is a problem.

Mr. MOLINARI. If I may respond to that? The petrochemical industry complex in New Jersey is the largest in the country. And there are things that can be done. Some of those plants are obsolete and should be closed. Some of them have violated every statute conceivable. Some of them have been closed as a result of enforcement action.

But that is the kind of thing that we are looking for. Those that are operating properly and with all of the modern environmental controls, I have no problem with. I should stop at this point. I know that you are busy, and I don't want to preempt the time, but it is a very serious problem in my community, Frank, and since we are on the issue of pollution, I had to raise that question.

Senator LAUTENBERG. I can't let the comment go unchallenged. The chemical industry is very important in our State. The people who reside in the communities nearby are very conscious of the possible effects of pollution on their own families and being.

We work very hard at it, and we have a lot of very responsible companies. Do we have violators? Absolutely. Do you have violators? Absolutely. But in the State of New Jersey, we have been working very hard for a long time to clean the air, to have the companies operate within standards.

We have the Federal and State standards which they must meet, and there is a lot of work being done. I don't think that it is fair to characterize the companies so ominously, Guy. There is a lot of work done to control the quality of emissions.

I have written a right-to-know law that requires companies to submit information about releases of toxic chemicals. So you have information available, your communities as well. We are hard at work in trying to make the environment better, and it is better for Staten Islanders and New York City people as well as the people in New Jersey.

Mr. Molinari. Many people have been hospitalized with some very serious ailments. We found that that particular plant was obsolete, the unit that let go shouldn't have been operating. That kind of thing is very common. You want to talk about jobs, sure. We have to preserve the jobs. At what price, though? At what price?

So, it is a double-ended question, and nothing that we will resolve here.

Senator Lautenberg. You and I will do this on Meet the Press.

Mr. Molinari. Thank you.

Thank you, Mr. Chairman.

Mr. Nowak. I thank the gentleman for his questions. And Senator, we appreciate your testimony. It certainly shows your commitment to this problem, and perhaps we will have an opportunity in the next few days to look at this matter very broadly and get a consensus that can move to the House and the Senate very quickly and be signed into law, and we certainly appreciate the time that you have given us on this side to put in perspective the whole problem as it exists.

And we look forward to working with you. Hopefully, we will find some time in the next two days to get back to you and work with the members in New Jersey and the members of this committee in New York.

Senator Lautenberg. Thank you. Members of the committee and my colleagues at the table, forgive me for having pre-empted your time. Congresswoman Schneider, Congressman Saxton, Congressman Hughes, and Congressman Gilman, thank you very much.

[Senator Lautenberg's prepared statement follows:]

STATEMENT BY SENATOR FRANK R. LAUTENBERG August 2, 1988
Committee on Public Works and Transportation
Subcommittee on Water Resources

Mr. Chairman, Congressman Roe and members of the Committee, I appreciate the opportunity to testify about ending the ocean dumping of sewage sludge.

It is unfortunate that today's hearing and the legislation you are considering is necessary. In 1977, Congress adopted Congressman Hughes' amendment to establish a 1981 deadline for ending the ocean dumping of sewage sludge. And, in 1979, at a hearing held by the Merchant Marine and Fisheries Committee, New York City Mayor Ed Koch said that the City could meet the 1981 deadline with interim measures and would have a long-term, land-based alternative to ocean dumping by the end of 1987.

Yet today, we have no deadline, no interim or long-term land-based alternatives, and no plan to end ocean dumping. How did this happen?

It happened because we have an EPA which during the last eight years has earned the name Environmental Procrastination Agency. EPA didn't bother appealing the court decision overturning the 1981 deadline. It then took four years to make a final decision to close the 12 mile site to dumping. It took two and a half years more to actually close the site. Since 1981, all EPA has to show for itself is moving the dumpsite. This year, roughly 60% more sewage sludge will be dumped in the ocean than in 1973, the first full year the Ocean Dumping Act was in effect. And since the 1981 deadline, dumpers have dumped enough sewage sludge to fill over 50 towers the size of a World Trade Center tower.

And what about ending sludge dumping? Well, in July 1986, EPA asked the dumpers to submit permit applications. It's now two years later and EPA hasn't even proposed action on the permits, let alone required the dumpers to implement a plan to end dumping.

Eleven days ago, Vice-President Bush came to the New Jersey Shore and said that EPA was working to end the ocean dumping of sewage sludge. Mr. Chairman, New Jerseyans and citizens of other Atlantic Coast states would be better off if the Vice-President went to Waterside Mall and told the EPA leadership to get on the ball and stop the dumping.

It's clear that we cannot count on the EPA. We need a firm deadline, in the law, to end the ocean dumping of sewage sludge. Only then, will alternatives be put in place. Only then, will the dumping stop.

That's why I introduced the Ocean Dumping Reform Act of 1988. It sets December 31, 1991, as the deadline to end ocean dumping of sewage sludge once and for all. This bill, which now has seven other cosponsors, passed the Senate Environment Committee on June 23. And I'm optimistic that the bill will reach the floor soon.

At Senate hearings which I chaired earlier this year, we heard clear and uncontroverted evidence that land-based alternatives for sludge dumping exist. In fact, according to EPA, 94% of all sewage sludge generated in the U.S. is disposed of on land. And just a few weeks ago, Governor Kean signed into law a bill requiring that New Jersey sludge dumpers stop ocean dumping by March 1991.

Sludge dumping at the 106 mile site involves significant risk. Sludge dumping contributed to the environmental degradation in the New York Bight Apex. Sludge dumped at the 106 mile site contains the same microorganisms, metals and organic chemicals which degraded the area around the old dump site. Since dumping at the 106 site began in full force late last year, fishermen have complained of lower catches and increases in diseased fish.

And the resources we are talking about are significant. According to the National Marine Fisheries Service, the dumped wastes could effect an area 116 thousand square kilometers, from New Jersey to North Carolina. The fish and shellfish that inhabit this area make up a large portion of the commercial and recreational fisheries which contribute one billion dollars a year to coastal Atlantic states.

Mr. Chairman, ocean dumping of sewage sludge represents a throw-away approach to waste disposal which we rejected a long time ago. Ocean dumping of sewage sludge is the least appropriate form of waste management. We won't know all the harm done by ocean dumping sewage sludge until it is too late. And there is no way to clean it up.

The ocean is a resource that belongs to all of us- residents..., tourists..., businessmen whose livelihoods depend upon a clean ocean..., commercial and recreational fishermen- up and down the East Coast who depend on the ocean's productive fishery resources..., and most importantly, to future generations, who will inherit the environment we leave them. Ending the dumping of sewage sludge in the waters off of New Jersey's shore is essential. We must preserve the ocean and its resources- both for those who now use the ocean, and for those who will use it in the future.

I urge you to act favorably on legislation to end the ocean dumping of sewage sludge.

TESTIMONY OF HON. BENJAMIN A. GILMAN, A REPRESENTATIVE IN CONGRESS FROM NEW YORK; HON. WILLIAM J. HUGHES, A REPRESENTATIVE IN CONGRESS FROM NEW JERSEY; HON. CLAUDINE SCHNEIDER, A REPRESENTATIVE IN CONGRESS FROM RHODE ISLAND; AND HON. JIM SAXTON, A REPRESENTATIVE IN CONGRESS FROM NEW JERSEY

Mr. NOWAK. Our next member—not by choice, but I guess we'll vary the States—we have a representative from New York next on the congressional list, Congressman Ben Gilman. If you would like to either put your testimony in the record in total and summarize or read your statement, we would be happy to hear from you. If we could, I would like to have all of the Members put their formal statement in and as a panel we could ask questions, and I would like to have you think of those three areas that I talked about with the Senator, concentrating on the deadline, the penalties and the fees we didn't discuss. We had a long colloquy with the Senator.

Mr. GILMAN. Thank you, Mr. Chairman, and members of the committee.

I welcome the opportunity to appear before you on this bill. I will summarize my statement and ask that the full statement be made part of the record.

Mr. NOWAK. Without objection, so ordered.

Mr. GILMAN. This certainly is a controversial and complex measure that affects all of us throughout the entire nation. Members of the Congress and citizens of the Northeast have long been aware of the problems of ocean pollution escalating to near epidemic proportions. The severity of this threat to our environment has been highlighted over the past two successive summers by massive beach washups throughout the Northeastern Seaboard, and was brought to national attention most recently with the August 1, 1988, editions of Time and Newsweek, which both ran cover stories on the tragedy of pollution at sea. Permit me, therefore, to commend the distinguished subcommittee chairman, Mr. Nowak of New York, and the ranking republican member, Mr. Stangeland of Minnesota, for convening this timely hearing to address a problem which presses upon the national conscience.

This bill, H.R. 4338, the legislation now before the subcommittee for consideration, is intended to prohibit the ocean dumping of municipal sewage sludge by December 31, 1992. While I support the objective of this well-intentioned legislation, I recommend that the bill as reported by the Committee on Merchant Marine and Fisheries on June 30, 1988, be amended to provide sufficient time for our local municipalities to fully comply with the new provisions of the law.

As my colleagues are aware, I represent a portion of Westchester County, one of the nine remaining municipalities currently dumping sewage sludge at the deep-water municipal sludge site, 106 miles off the coast of New Jersey. Westchester County, which is part of my constituency, is fully willing to discontinue its ocean dumping activities. Westchester County Executive Andrew O'Rourke has written to me:

> I have no objections to seeking a land-based alternative for the disposal of sludge; however, it is imperative that the alternative selected be environmentally acceptable.

The county has been working with the regional office of the Environmental Protection Agency to select an alternative disposal method, and monies have been appropriated in the county's 1988 capital budget for this purpose. However, the County of Westchester informs me that the selection, design, licensing, and construction of a suitable project site will take from eight to 11 years to complete. The earliest, therefore, that Westchester can be reasonably expected to get out of the ocean is by July 1, 1996.

Let me read a short paragraph from this recent letter to me from County Executive O'Rourke:

> To select a reasonably sound and implemental project requires 23 months, and once the project has been defined and funded, the time to design and construct a startup system will add some six or more years. If the termination of ocean disposal of sludge is required, the realistic time to provide an alternative is eight to 10 years, and I am, therefore, requesting the bill be amended to provide for a deadline of a 50 percent reduction by 1996 and 100 percent reduction by the year 1999.

The basic premise of H.R. 4338, however, is that suitable land-based alternatives to the ocean disposal of sewage sludge are currently available. In Westchester County, this is simply not the case. Westchester currently dumps an estimated 15,400 dry tons of sewage sludge per year at the 106-mile site. Combined with the dumping activity of Nassau County, this represents a total contribution of 6.7 percent of the dumping licensed by the EPA. It is important to note that this sludge is 95 percent water, contains no floatables, and bears no scientific connection to the waste washups currently plaguing the shorelines of New York and New Jersey.

Nonetheless, there is no denying our intuitive suspicion that the ocean disposal of sewage sludge must present some potentially adverse environmental consequences. To use the much-quoted phrase of Dr. Stephen Joseph, New York City's Health Commissioner, "The planet is sending us a message. We cannot continue to pollute the oceans with impunity." While we pursue the well-intentioned goal of eliminating ocean dumping, we must take every precaution to preserve environmental integrity in selecting an alternative disposal method. It is with this principle that I believe that the premise of H.R. 4338 must be moderated.

The committee may be aware of the strong environmental record which I have maintained throughout my 16 years in the Congress. Nonetheless, despite the worthy environmental objectives of this legislation, I urge my colleagues to consider a more reasonable period of time for compliance with the law in order to avoid aggravating the current waste management obstacles facing my district and other districts. Westchester County can and will get out of the ocean, but Westchester must be afforded adequate time and sufficient flexibility to overcome this challenge in a reasonable and environmentally-sensible manner. I look forward to working with this committee to provide a compromise which would affect this worthy outcome.

Mr. Chairman, thank you and your committee for your willingness to entertain the relevant viewpoints on all sides of this issue.

Mr. NOWAK. I thank the gentleman for his testimony, and we will move now to the sponsor of the bill, from the Merchant Marine and Fisheries Committee, who has lived with this problem I guess since we arrived here in Congress, The Honorable William Hughes of New Jersey.

Mr. HUGHES. Thank you, Mr. Chairman.

First, let me thank you and the ranking member, Mr. Stangeland, and the committee, for scheduling these very timely hearings and for hearing us out on H.R. 4338. I offered H.R. 4338 on behalf of myself, my colleague, Claudine Schneider of Rhode Island; my colleague from New Jersey, Mr. Saxton; Mr. Dyson of Maryland and Mr. Carper of Delaware, among others.

It is an issue that has been with me a long time. We were both Watergate babies together, and one of the issues that I became involved in from the very time I came to Congress was the ocean pollution issue. There seem to be several different concerns, and rather than read my statement which you have already read, I would like to take a few minutes and talk about some of the concerns that, apparently fall into the following categories: It is not our sludge that is washing up on your beaches. That is one argument that is made. Second of all, we don't have enough time and, number three, the fines are too excessive.

Mr. Chairman, in 1976, some things happened at the seashore that in fact alarmed the East Coast in particular, the same kind of phenomenon we see today, and there was a tremendous outpouring. It became a major issue in my 1976 campaign, as my colleague, Bob Roe, knows. And, in fact, my future in the Congress depended to a great extent upon whether I was perceived as doing enough to try to protect New Jersey from ocean dumping.

Now, in 1976, we had over 200 industrial dumpers, and we had dozens, literally dozens, 40 or 50, major dumpers of sewage sludge, among them Philadelphia, Pennsylvania; Camden, New Jersey, just to mention just two fairly significant numbers. They all made the same argument that we have heard here today, as did New York City, the grand-daddy of the dumpers, and six communities from Northern New Jersey, except, of course, in those early days Mayor Koch was my ally here in the Congress in trying to phase out ocean dumping, and I understand he now wears another hat and has to bear new responsibilities. So, of course, I understand.

But ocean dumping has continued because we have always done it that way. The ocean doesn't have a constituency, fish don't vote, so we viewed the ocean as a repository of last resort. We always thought the ocean was a bottomless pit, we could do anything with it, and so anything we didn't know what to do with we dumped in the ocean. Now it is coming back to haunt us in spades. I represent a district like my colleague from New Jersey, Mr. Saxton, and not unlike my colleague, Claudine Schneider's district that depends very heavily upon tourism.

Let me address, first of all, the argument. I understand you may have summered in my district this year. It is not the dumping of sewage sludge, nobody ever suggested sewage sludge is our only problem. It is combined sewer overflow, urban runoff, it is agricultural runoff, it is our storm drains also that carry away the things that are on our streets, that we don't do a very good job of cleanup.

It is the mud dump site that contributes somewhat, seven miles off of our beach. It is sewage sludge, and the chemicals we dumped for years that we have learned more and more about ocean dumping. We know today, for instance, that while 10 years ago we thought that once we dumped sewage sludge, it dissipated. Well, it doesn't dissipate, and the bacteria stays in the ocean for long periods of time. The pathogens can survive for upwards of a year. They are carried by the winds and the tides all over the place.

And as my colleagues know, with a fragile tourist economy, people don't separate out what is washed up on the beaches today. It is medical waste today, but it was dolphin deaths last year, and it is the diseased shell fish we are catching now out on the continental shelf that fishermen are bringing up, like this lobster that is diseased, much like we saw the shell disease around the 12-mile dump site associated with sewage sludge. But the tourist industry is a very fragile industry, and people don't separate out today's medical waste or hospital waste, and yesterday's algae bloom caused by too many nitrates and phosphates in the water. So they all contribute to make the ocean a cesspool.

No other part of the country has the luxury of an ocean to dump in. In Buffalo, Mr. Chairman, your home town, you incinerate. Most of New York in fact has developed land-based alternatives. Throughout the rest of the country, except for nine communities, we have developed land-based alternatives. We depend in my region upon clean water, clean sand, clean air, much like you, Mr. Molinari, you want your air clean, we depend upon that. We have a $7 billion or $8 billion tourist economy in New Jersey that has been decimated. In parts of New Jersey, the economy is off by 80 percent.

Should that be factored in? I should think so. I mean ocean dumping is perceived as being cheap, and it is to the dumpers, but society is paying for it. We have a major restoration program that came out of this committee, with Jim Howard's leadership, we are going to clean up the mess we created, from dumping for decades just off our beaches. It is going to cost us tens of millions of dollars.

Who is going to pay for that? We are all going to pay for that. It is not so cheap. Who is going to pay for it if we continue to destroy the ocean? We are all going to pay for it. We already are. Perhaps my district is paying for it a little more than many other districts because my little city, Ocean City, is off by perhaps 25 percent right now, and people are traveling to North Carolina and South Carolina to vacation. Read the newspapers, I am sure you are. They are interviewing in Virginia Beach now.

Where are they coming from? Pennsylvania, New York. They are not going to the beaches in New York because they have been closing them. And while we can go into the water and suggest to people that our beaches are clean, they don't believe it. At one time, they thought the ocean was a good place to take our children because it was medicinally good for us. Today a lot of parents don't want their children to go into the ocean. Why? because they don't have faith the ocean is clear, though in many respects it is cleaner, except for the trash and the debris that washes up and except for our fishery resources, which are now directly at risk. Mr. Chairman, sewage sludge contributes to it.

Number two, insofar as the penalties, it was our intent to get their attention, and obviously we did get their attention. We wanted to make the fees per dry ton equivalent to what they are saving and have that money go into a revolving fund to help them finance land-based alternatives.

Now, they have been on notice since 1977 that we want to phase out ocean dumping, that was national policy. You know, Philadelphia was only forced out of the ocean which cost them more money, and they developed land-based alternatives. They had to pay a huge fine. Is it fair to Philadelphia, Camden and dozens of other municipalities forced out under our law in 1977 to now permit New York City and other communities to say, well, we don't have enough time? They are never going to have enough time, because, frankly, they have never taken it seriously. As soon as they beat the law in court, and they gambled on it, they walked away from the land-based alternative process. It is in black and white. We have a letter from the Commissioner of Environmental Protection in New York who says just that.

It was a deal that was cut by EPA in 1980–1981, and the City of New York to gut our law. We begged EPA to appeal the decision. We didn't know at the time that they had already cut the deal, that they were part of it, to factor in the cost, as well as the environmental concerns, and when you do that the ocean always ends up last, because ocean disposal is always cheaper. So they have had 11 years to do it, 11 years. And they have had sufficient lead time.

Insofar as the fees, the fees have been calculated to in fact take away the economic incentive. But they don't have to worry about the penalties and the fees as long as they enter into an agreement with EPA that sets benchmarks and to comply with the law and develop land-based alternatives. They don't have to fear the fees and the penalties.

It is a good law, and I would urge the members of the committee to support it. We hope that you can join with us as partners and once and for all carry out what we intended, Mr. Chairman, in 1977.

Mr. NOWAK. I thank the gentleman from his statement, and I know we will have some questions concerning these differences, especially in the approaches.

Let me turn to Congresswoman Claudine Schneider from Rhode Island.

Ms. SCHNEIDER. Thank you, Mr. Chairman.

I would like to elaborate, on some points that I believe hold some great importance, and that is the historic perspective. As the Senator had pointed out, in 1972, Congress passed the Ocean Dumping Act, and in 1977, Congress passed an amendment to the Ocean Dumping Act to end dumping no later than 1981. When this amendment was passed in 1977, there were over 135 municipalities that had permits or were seeking permits to dump sewage sludge at the 12 Mile Site. What is important to acknowledge is that by 1981, all but nine of these municipalities had gotten out of the ocean dumping business. I think that in itself makes it pretty clear we are not asking for the impossible. We are certainly being realistic in our time lines that we have proposed.

One of those who got out was Philadelphia, which entered into a compliance agreement with EPA in 1979, and by the fall of 1981, Philadelphia stopped ocean dumping. Since my colleague has elaborated on the impact of ocean dumping on the tourism industry, let me speak on behalf of fisheries. I think that there is very little doubt that as we look at the 12 Mile Site, it has become a virtual "dead sea." I am mentioning this to my colleagues so that you will have the opportunity to ask a later witness, Mr. Davies, from the EPA, if he concurs with that assessment.

But the scientific information that has been coming forward about the 12 Mile Site clearly indicates that the problems there are extreme. Within the past year, there have been numerous reports from fishermen and scientists about various new diseases, deformed fish and shell fish coming from previously pristine areas around the 106 Mile site. Lobster catches in the canyons 30 to 40 miles northwest of the dump site have been off by 70 percent this year, 90 percent of the crabs and 10 percent of the lobsters caught in the canyons have shown signs of burn spot disease, like some of those that you see in these photographs, and this has been linked with sludge dumping in the past.

The catches of tile fish, butter fish and squid, some of our most significant exports for the United States that have been found in the areas around the 106 Site, have been off by as much as 70 percent. You are going to be asked to do a cost/benefit analysis. You are going to be told by New York that they cannot afford to take this action now. Well, I ask you to look at the big picture, to put before you the entire cost/benefit analysis and to recognize that there will be a major and continues to be a major impact not only on the tourism industry but also on the fisheries industry.

The fisheries industry, we should keep in mind in taking an even larger picture and looking at our global competitiveness, is the only industry and the only segment of the U.S. economy with a trade surplus with Japan, $1.1 billion. That surplus, however, is right now in danger. The commercial fishing industry is worth nearly three-quarters of a billion dollars to Rhode Island's economy every year, and there are 7,000 Rhode Islanders employed directly or indirectly in the fishing industry.

Salt water recreational fishing is worth well over $100 million to Rhode Island's economy. We are only talking about the Ocean State, the small State of Rhode Island. We are not even beginning to look at the impact on fisheries as it relates to the States of Massachusetts, New Jersey, Maine and others. The fishing industry is worth nearly $1 billion in my State of Rhode Island, and as we consider the value of the industry and other Northeastern States and the economic cost of dumping 8.5 million tons of sludge per year at the 106 Site, I think that the final assessment will be that as this cost/benefit analysis is done, that needless to say, the time to take action for ending ocean dumping is right now.

I have the unique opportunity to be one of the only Members of Congress to serve both on the Merchant Marine and Fisheries Committee, which has held hearings on this issue, but also on the Science and Technology Committee. I will direct my comments to my colleague, the chairman of the committee, Mr. Roe, and I think Mr. Roe, whether you have been on the subcommittee or not, you know that our committee has for years and years and years been looking at our technological options that do exist.

So that for any New York municipality to say, well, we don't know what we are going to do with our sludge, let me suggest just a few different alternatives that exist. Some of the most traditional uses have been land filling. It is a basic disposal in municipal or private land fills. Composting is also another process that is widely used in Washington, D.C., Philadelphia, the County of Los Angeles, Albany and Schenectady, New York, among others.

Enviro-gro Technology turns sludge into profitable fertilizer pellets, and this is the option Chicago, Philadelphia, and Washington, D.C., have also chosen. In addition to that, a third technology that is available is land spreading which is a straight use as a fertilizer on agricultural lands, utilized throughout the United States. Denver and Sioux City, Richmond and Indianapolis are all using this approach.

As a matter of fact, Chicago has been reclaiming previously stripped mined lands in Fulton County with sludge. The project was initially opposed by Fulton County, but now is embraced by the entire population because of its creation of jobs and the tax income.

The fourth alternative that is also very widely used is incineration. Several different types. And incinerators with modern emission control devices eliminate all contaminants. This process is used by Rochester, New York; Buffalo, Hartford, Atlanta, St. Louis plus many others. The burning of solid waste to produce both heat and electricity is one of the co-disposal processes, that is one of the newest technologies, and the State of Delaware and also Glen Cove, New York in Nassau County, which still is one of the nine dumpers, saves the city $700,000 per year by using co-disposal technology.

A fifth innovative technology is the manufacturing of bricks and building materials. This has been used in Ohio and a number of other States. In Richland, Washington, the Battelle Memorial Institute has a facility that turns sludge into No. 4 diesel oil, and they are contracting now to set up such a facility in Florida. Some small towns, notably Arcadia, California, have bypassed the need to dispose of sludge altogether by creating a series of artificial wetlands which raw sewage filters through. They have found they have attracted as a result great flocks of seabirds, dozens of osprey, owls and falcons.

Those are just a few of the technologies that are available that are currently being utilized, and I think if we recognize that if the majority of the United States has gotten out of ocean dumping, they have had the will and the technology to do so, then why not New York City and those remaining municipalities?

Let me share with you why I believe the 1992 deadline must remain intact in this bill. Our bill recognizes the necessity to end ocean dumping as soon as possible, but it also recognizes the necessity to allow New York City to implement land-based alternatives. It allows four years for this transition, as did the original 1981 ban that was passed in 1977.

Now, I have testimony which I kept from the Merchant Marine and Fisheries Committee, and as Mayor Koch had stated even before I came to Congress in 1979, he testified before the Merchant Marine and Fisheries Committee, and he said:

> Simply stated, New York City's objection to the 1981 deadline is not a function then of its inability to meet the requirements of the law. We are not here because we cannot do what the law says, we are here to tell you that the law, which I voted for, in our judgment, will not meet the objectives that we want.

Well, the objectives that are being referred to is to continue to utilize the most inexpensive disposal method for as long as possible. It has been nearly 10 years now that the mayor has stated he could meet the 1981 deadline, and now the city is claiming it cannot meet a 1992 deadline; 1992 will be 15 years after Congress first enacted a deadline for municipalities to get out of the ocean dumping business. It is not as if these municipalities didn't see the train rolling down the track. Over 100 municipalities have been responsible, and they have done so during that time. So it is now time that 100 percent of our sludge be disposed of properly.

Might I also mention, Mr. Chairman, that as we look at the various excuses that this committee will hear today, insofar as do we have the money, do we have the time, it is too costly, let's change the fees that we are talking about, let's change the different time elements, I think the bottom line comes down to just one thing, and that is political will. I think that what we have to see and what this Congress must ask for responsibly is the willpower of those remaining municipalities to take the action that is technologically feasible and is in the best financial interests and the best environmental interests of all people.

There are 10 fishing organizations, everyone from New England Fisheries Management Council through the Mid-Atlantic, South Atlantic and the Gulf of Mexico Fishing Councils that support this bill and these time lines. There are 16 environmental organizations that also support this legislation.

All of our constituents in national polls, one after another, clearly indicate that Americans are willing to pay more if they can be assured that environmental protection will move forward. Scientists may tell you that they may not be able to prove 100 percent what is going on at the 106 Site or what responsible for the decline in the fish or some of the fin rot we are seeing in those pictures. We have a responsibility as legislators however, to not wait any longer to see the dead fish floating on the surface of the water or to find our bathers contracting various illnesses and diseases.

Time is of the essence, and we must act responsibly. We have the tools, we have the money, we have the technology. Now all we need is the political will.

This Congress has not been noted for much environmental legislation passing during this particular time. I think that we have the opportunity to show that we have the political will in this body to move legislation that will be counted as one of the most significant pieces of environmental legislation to move forward this year. I hope my colleagues will choose to move our bill forward without compromise, without watering it down, and with the greatest amount of enthusiasm, not to mention the greatest amount of time, so we can see a speedy end to ocean dumping.

Thank you.

Mr. NOWAK. I thank the gentlewoman for her statement. We will now hear from Congressman Jim Saxton, also a member from New Jersey.

Mr. SAXTON. I thank you, Mr. Chairman.

Let me add my thanks and commendations to you and the ranking member and the members of the committee for permitting us to be here this morning to talk about something we think is a very, very important problem not only to the Northeastern part of the United States but in the future certainly to the rest of the country.

In her opening statement, Ms. Slaughter from New York said the eyes of the whole nation have turned to the condition of the ocean. I don't think anything could be truer or more appropriately said than what Ms. Slaughter said, and it has been that way because—for this summer and part of last summer—things have continued to grow worse with regard to at least the perception of the problems that we have with the ocean.

Last week we dealt with another environmental problem. The House of Representatives last week appropriated $6 billion to deal with another environmental situation, one that was in no way caused by any human being, one that in no way did anyone on the face of this earth have any hand in causing, but one that was a very, very serious one.

We are here today to deal with another environmental catastrophe but this one is different. This one is different because the causes of it are in this room, the causes of it live in New Jersey, the causes of it live in New York, and the causes of it live within a 70-mile distance from our oceans all around the country. It is a man-made problem and one that we have a very definite, a very sincere wish to correct, a problem that we have created, in other words, and a problem that this Congress, that this committee, as well as our Merchant Marine and Fisheries Committee has a very, very determined will to do something about.

Now, as it was pointed out earlier by my good friend from New Jersey, and I would like to try and frame this sludge problem in a way that perhaps he did as well. It has been said many times by many people that sludge is not New Jersey's seashore problem, and yet when we deal with New Jersey's seashore problem, we have found that we deal with a significant number of problems. We deal with the problems of floatables. And it was a long time before we discovered that those floatables, almost always plastics, were coming out of our New Jersey, New York, and Connecticut sewer systems because of something called combined sewer overflow. When it rains in many, many parts of the country, in many municipalities along the seashore, those items that flow simply flow out of the sewer pipes and into the ocean and onto the shores—a very significant problem.

We found also that there was a great deal of degradation to the environment being caused by dredge spoils being dumped just six miles off of New Jersey's shore, another significant problem, and one that this Congress or the Corps of Engineers or the EPA has to address—another man-made problem.

We have also found that plastics washing up on our shores, not talking about medical waste types of plastics, but plastics, is another major concern. Last year, and for other this I give credit to your good late chairman, Jim Howard, sponsor of a bill which prohibited the dumping plastics from ships going up and down our seashore. As of December 31st of 1988, this year, it will no longer be legal for ships to dump plastics any place in the ocean.

You can go through the many problems that we have, the most notable of which this summer has been the medical waste that has washed up on the shores of Rhode Island, New York, Long Island and New Jersey. It has demonstrated very clearly to the American people, and I think that is why Ms. Slaughter made the statement that she did, "the eyes of the whole nation have turned to the condition of the ocean."

Within all of those problems that had to do with ocean pollution, one of the very most significant from a real point of view in terms of offshore pollution and the degradation of the environment in the ocean, 106 miles off-shore and further in terms of the perception that people have of the New Jersey and Rhode Island and Long Island, New York shores is the subject, another very important one, perhaps the one that people focus on second to medical waste, and that is of sewer sludge dumping, and that is why we have to do something to stop it. That is why Congressman Hughes introduced and Miss Schneider and I co-sponsored the bill to stop ocean dumping, originally at the end of 1991, but as it emerged from the committee, at the end of 1992, and we did that as a compromise.

Now, we have heard this morning, and we have heard in the past, arguments that our approach isn't necessary. Those people who argue that our approach isn't necessary subscribe to a theory that I refer to as the infinite dispersal theory, which means to me that you can continue to dump into the ocean, and it will just continue to disperse forever.

Well, you know what? That is what we thought, that is what we thought about getting rid of toxic wastes on land. We found out that we just couldn't put them out of sight and that they would go away forever. And that is what we thought for many years about our smoke stacks, not in New Jersey necessarily or exclusively in New Jersey, but across the country, and today the evidence continues to mount that acid rain as the result of smoke and oxides from those smoke stacks is having a deleterious effect on our environment that we also have to do something about.

And so when we say it is okay to dump sludge in the ocean and it doesn't hurt, then you subscribe to the infinite dispersal theory, getting rid of things by putting them in the environment and letting them go away, but I believe you need to look, we need to look at history and what we have learned about that theory elsewhere in our environment.

I think I should also mention something that has come up here several times today, and that is that we need more time. My good friend to my left mentioned that, I guess Senator Lautenberg mentioned that Bill Hughes had sponsored a bill that passed in 1977 that would have ended ocean sludge dumping in 1981, and dumpers all across the country, around the country, including Philadelphia, my neighboring city, I live right across the river, got out of the ocean.

But there has been a different attitude. In 1981, Northern New Jersey communities and New York communities didn't get out of the ocean, they chose instead to go to court. They said, "We can't get out of the ocean, it is not feasible to do in 1981." And they haven't gotten out of the ocean yet. Just several months ago, the mayor of New York City came to testify before the Merchant Marine and Fisheries Committee, and he said, "We can't get out of the ocean, we can't get our sludge out of the ocean, it is not practical to do. We don't have the money to do it, and the deadlines that you are imposing are not reasonable", and I said to the mayor, "Mayor Koch, when can you get out of the ocean?" He said, "I don't know." I said, "Can you get out in five years?" He said, "I don't know." I said, "Can you get out in 10 years?" He said, "I don't know." I said, "Can you get out in 15 or 20 years?" He said, "Congressman, I don't know, I don't know, I don't know."

As further evidence of the attitude of those who want to continue to dump in the ocean, just this year the EPA was required to reissue permits for the continuation of ocean dumping subsequent to the end of this year, and that process is ongoing. Applications were sent out to those authorities which are currently dumping in the ocean, and part of that application was to show what type of progress they were trying to make or that they had made in finding other methods of disposing of sludge.

You know what? The applications had to be returned because they didn't complete those sections. They had no intention of completing those sections until they were forced to do so by the EPA.

So to make a long story short, to summarize, Mr. Chairman, we have a major problem with sewer sludge off the East Coast. It was transferred out to 106 miles with the intention of a stop gap measure, and it is now up to this committee and to us to be sure we do what we can to make sure sludge dumping is stopped at the earliest possible date.

Again, I thank you for your attention to this matter. It is very important to our constituents, and I believe to people who view the New Jersey shore as we have.

Let me just make one other point. In New Jersey and in Rhode Island and on Long Island and in New York, we are very proud of the natural resources that we have. Gordon Bishop, who wrote a book, actually a collection of pictures and descriptions of New Jersey, for the Newark Star Ledger, the biggest newspaper in our State. When you open the book to the front page, the first gem that you see is a seascape of New Jersey shoreline. We are proud to promote what happens at the New Jersey shore, not because we represent it, but because it is a gem and one that Gordon Bishop chose to make the inside cover of his book.

And when we promote New Jersey in New Jersey Outdoors, the center-fold is a seascape and people having fun on our beaches, people vacationing there with their families. And then another publication, the center-fold, a picture of another seascape featuring Barnegat Light, this is what we promise people when we in New Jersey and Rhode Island and Long Island are telling them what they are going to have, what they are going to see, and what they are going to be able to enjoy when they come to our seashore.

But what do they get? They get, as Newsweek points out, "Don't go near the water." They point out, as Time Magazine points out, our filthy seas. Ladies and gentlemen, this committee, our committee, our Congress, the people's representatives have, in my view, a responsibility to do something about what people have done to the ocean.

Thank you.

Mr. NOWAK. Thank you very much for your statement.

We will at this point in time just mention that Tom Manton who wanted to testify today was held up in New York City, hopefully not caught in the sludge, but has finally I understand arrived out of the clouds to land at the D.C. airport, and I think we will give him the opportunity if and when he arrives to join the panel.

But in the meantime, perhaps we should examine some of the questions that you have raised and that I have heard from other sources concerning this whole problem.

One of the 32-page court decision that a lawsuit started in 1981 talked about the bill's lack of environmental, I guess, review, or review of the economic costs. I wonder if either of you or any of you could comment on why the court reached that and possibly could the court, could a court if H.R. 4338 was adopted, the possibility of a court coming in at some later intervening date and doing the same thing they did in 1981.

Mr. HUGHES. I think I can answer the question, Mr. Chairman. First of all the court was absolutely wrong.

Mr. NOWAK. Pardon?

Mr. HUGHES. The court was absolutely wrong in that determination. Abraham Sofar could not for the hearing record or from the legislation have interpreted the law to require a balancing of the economic alternatives. That was not—in fact, the hearing record supported the diametrically opposite conclusion, and because it was a consent decree, that is the Environmental Protection Agency agreed with New York City and then refused to appeal the decision once the judgment was entered by the court, and since no other parties had joined as amicus, there was no appeal.

I sat down with Ed Forsythe, Jim Saxton's predecessor, the Chairman of the full committee, the Chairman of the subcommittee, Jim Howard and others, and we went over the hearing record and while the Environmental Protection Agency had to concede that the hearing record supported the opposite conclusion, Ann Burford, refused to appeal the decision.

Ms. SCHNEIDER. Mr. Chairman, I might also point out, as I have in my testimony, insofar as the economics of it, I think very easily the damage that we are experiencing, whether it be the fishing industry or the tourism industry, also has a price tag, and I think that price tag could be easily weighed against the cost of building a sewage treatment facility.

Mr. HUGHES. I might also add, Mr. Chairman, in this legislation we make it abundantly clear there is no balance, this legislation is abundantly clear there will be no economic balance, that the outside deadline, December 31, 1992, deadline, by definition of sewage sludge and by other terms, we make it abundantly clear that it is an outside deadline.

Mr. NOWAK. Isn't it true also the State of New Jersey at this point in time may take a different view of the position that they had back in 1981 on this matter and would support, I would assume, the passage of any federal legislation which extended their own state law?

Mr. SAXTON. If I may, Governor Kean who obviously signed into law the ocean dumping law in New Jersey communicated with us close to a year ago and indicated to us how important it was to have federal legislation like this on the books.

There is a great deal of support in the official policy of New Jersey based on its own law passed by the state legislature and signed by the Governor and based on his written request to us to put in place federal legislation that would mirror the March 17, 1991, deadline imposed by the state legislature.

Mr. NOWAK. Let me ask you one other general question and then I will turn the questioning over to some of the other Members who I am sure have questions relating to those first three differentials we talked about and that we can discuss later.

The state passage of this, have they in any way contacted the sewer authorities that are going to be affected and offered any type of help, either in terms of scientific, engineering or financial aid to those counties to encourage them or perhaps provide more incentives? Is any of that in the New Jersey state law?

Mr. HUGHES. Mr. Chairman, I can only tell you what I understand. I understand that they have contacted the authorities. There has been on-going dialogue with the authorities who have made clear to New Jersey I believe, almost uniformly, that they cannot meet that March 17, 1991 deadline. So there is on-going dialogue and the Governor and the agencies that have jurisdiction have indicated they are going to work with the authorities in developing the land-based alternatives.

Mr. NOWAK. Have any of the New Jersey agencies, the largest being Passaic, talked to the Governor or made any comment relating to their ability to meet that date favorably?

Mr. SAXTON. There are on-going negotiations my understanding is between the six privately owned north New Jersey sewer authorities and the New Jersey Department of Environmental Protection. Negotiations have to do with a time for them to get out of the ocean by March 17, 1991, and with various other types of arrangements where the states may help to expedite those procedures.

I am also told the financial obligation will fall on those, the rate payers and those sewer authorities and the information I have been given recently is it may need a rate increase in the neighborhood of $40 per household per year to cover the extra expense of dumping or getting rid of sludge through some means other than through ocean dumping.

Mr. NOWAK. Let me now turn to my colleague from New York, Guy Molinari.

Mr. MOLINARI. Mr. Chairman, with your consent I would like to bring this chart down to where the aisle is and a brief explanation of what it means.

Mr. NOWAK. Without objection from any of the Members, so ordered.

Mr. MOLINARI. Let me preface my remarks, Mr. Chairman, by saying I agree with almost everything my colleagues here said, and particularly Mr. Hughes when he says that—and Mr. Saxton, holding the city's feet to the fire, the city of New York that is. If you don't, it is not going to happen.

So I agree with that principle that you must hold their feet to the fire. Goodness you tried it with the landfill and they violated every consent decree they have ever signed.

However, what I tried to point out earlier was you are going to succeed, maybe the date is going to be made a little flexible. There is going to come a day you are going to succeed and you are going to force the city of New York to stop dumping sludge into the ocean. It is a day I look forward to. What then? What then can we expect to happen?

Sure as hell I can tell you what is going to happen. There is one landfill in the city of New York, it is the largest landfill in the world, that is Staten Island. Colored in green. And all that sludge, that sewer sludge is going to be dumped in the landfill in Staten Island.

Now it is now being dumped at the 106 mile site, which is where the red marker is. When it is dumped in Staten Island and we had the heavy rains like we did last week, for example, you know what you are going to have happen? It is going to hit Keyport and McKeesport only a very short distance away. It is going to hit the Highlands, Long Branch, Asbury Park, Ocean Grove, and then, of course, Spring Lake, Madison, all in a relatively short, short distance.

So I appeal to you when you say the ocean doesn't have a constituency, I disagree. It has a very sizeable constituency and we will that in many votes that occur and I am sure it is going to pass overwhelmingly.

But at the same time, I read a note of caution that what we are doing will result in another, perhaps more serious problem and the Jersey shores I think will face a much greater threat. I say this by way of cooperation, not to say you shouldn't being doing what you are doing. Because I think what you are doing is an admirable purpose and one I join in.

I think you have to go ahead with what you are doing, but at the same time please remember what the consequences will be. Know in advance that is what you are facing, and let's work together so that we ensure that when ocean dumping ceases, we don't inherit a more serious problem.

Ms. SCHNEIDER. Mr. Chairman, may I ask my colleague a question related to his remarks?

Mr. NOWAK. If the colleague would like to entertain a question.

Mr. MOLINARI. Any time Claudine.

Ms. SCHNEIDER. I am curious to know why you are so sure that those municipalities will choose to do landfilling as opposed to the half dozen or more different technological alternatives that I have shared with you in my testimony.

Mr. MOLINARI. I am afraid that I have a historical bias and I think Mr. Hughes will agree with me the city of New York when we wanted to move the dump site from 12 miles to 106 miles fought visibly, said they didn't have the scout, it was going to be so costly.

Jim Howard and myself and others endorsed that proposal despite the cost. So I am afraid the history is there. They will choose the cheapest way out. The cheapest way out unfortunately may not be that which is most advantageous from an environmental standpoint.

Ms. SCHNEIDER. But from what you are saying the landfill approach will not necessarily be the cheapest way out because there will be resultant impacts there on the community and if there is, in fact, an environmental impact statement, you may find a state impact statement that there will be more negative and more costly impacts as a result of landfilling as opposed to doing what, for example, Glen Cove in Nassau County is doing and that is where they are making a profit. They are saving the city $700,000 a year.

Mr. MOLINARI. I wish I could speak with more confidence about my own city, I would like to do that, but very honestly the record is not a good one and the New Jersey shores have been plagued with debris that comes from that landfill. They have monitored it, there has been all kinds of lawsuits commenced and it still goes on today. It bothers our own community. But the problems that our colleagues in New Jersey have talked about, they are legitimate problems.

So you can be assured, you can be assured they are going to look at the alternatives. This is going to be the cheapest and it is the only landfill left in the city of New York except for a very small one in Edgemary and Queens which I don't think they use. That is where it is going to go.

Ms. SCHNEIDER. I would hope the citizens of New York would be smart enough to ask questions like, is this in fact going to be the cheapest alternative or will there be some ancillary impacts, for example, in terms of contamination of groundwater? Or whatever it might be. But it seems to me that you have to do a comprehensive environmental impact statement and if that is done, then you may find that is not the cheapest alternative.

Mr. MOLINARI. Right now there are four million gallons of leachate a day coming off the Staten Island landfill and going into neighboring waterways.

Mr. HUGHES. Mr. Chairman, I think the gentleman from New York is absolutely 100 percent correct. I think that would be the strategy of the city of New York. That is why the legislation was structured as it was structured because it basically forced the city of New York and the northern New Jersey communities into a consent decree.

They have no practical alternative except a consent decree and it is going to be the Environmental Protection Agency that is going to decide whether or not the alternative is a reasonable one. Now, Fresh Kill landfill is already a disaster. And when the gentleman says that the consent decree has been violated more than observed he is again absolutely correct.

Much of our floatable material comes from Fresh Kill landfill, while under the newest consent decree entered back in April or May of this year through the auspices of the Federal District Court. They are going to have to make a number of changes at Fresh Kill but Fresh Kill in my judgment could not accept that material.

I can't imagine the Environmental Protection Agency ever agreeing to permit them to make a mountain and it is not suitable material for a ski slope but that is what they are building out there. It is almost high enough. It is almost as high as Stratton Mountain, isn't it?

Mr. Molinari. That is how they sold it to our community. They intend essentially they say to make that a ski slope.

Mr. Roe. Will the gentleman yield?

Mr. Molinari. I will be glad to yield.

Mr. Roe. I have listened patiently to all of our good colleagues and it is a debate that should have been held on the Floor of the House. The fundamental basic point is—as I listened to you, will you be kind enough to listen to me, Mr. Saxton. Mr. Saxton.

Mr. Saxton. I am sorry.

Mr. Roe. The fundamental point—we have been through this drill, this is nothing new. For 20 years I have been sitting on this committee and for ten years. It has been the same. The question remains are we or are we not going to let people dump in the ocean no matter what it is? The tragedy of the issue is, above and beyond the obvious, is the fact we are losing billions of dollars a year like idiots because we are allowing this to happen.

New Jersey is probably going to lose $3.5 billion at least this year in the tourism business. Look at what is happening in Long Island, Staten Island and wherever. Is it right in America, all this dialogue not withstanding, we should continue to do this? Mayor Koch is a very personal friend of mine. Like it or not, it has got to stop. It is that simple in my judgment.

When one comes back and says how much in order for something to work, it also has to be practical. One legitimate problem we have, I am totally in accord with what you have said in every respect, one thing we ought to discuss is the legitimate problem I see here financially in the sense that if we use the date involved, which I don't fault by the way; the problem we are faced with is that the agencies involved, particularly those in New Jersey or New York, and the fees required have to put up a considerable amount of funding in advance so as to speak in a four-year period of time, whereas probably the solution could be bonded over a longer period of time, say over 20 years I would think. So that the immediate impact of trying to do the job in four years time, which I am in favor of, and the way the financial structure has been worked out means that heavy burden is going to be placed.

For example, Passaic Valley is talking about a 25 percent increase the first year and it is not just $40 a ton. So that over the four or five-year period we are having a 55 percent increase by 1992. Now that doesn't scare me. It will come out in the Mountain Press tomorrow morning but for a four-year period of time it does.

There ought to be an option in financing that would come back and say, in my judgment as a suggestion, that if one of these agencies chose to use an alternative method of funding and we put up the same amount of money you require in your fee approach by bonding it and putting in an escrow account or whatever.

I think that would be flexible and workable and that is something we should think about. Therefore, the argument of whether or not there is going to be this humongous increase and it is going to bankrupt the Passaic Valley Sewer Commission in a period of time becomes a figment of imagination.

Bill Hughes, let me say this to you, whom I have the highest regard for, God the dialogue one more time, the combined sewers. This committee got tired of listening to me on the combination of combined sewers. It took years to write that into legislation and this Administration and the Administration before it would not fund that. They would not fund the elimination of combined sewers.

That has been an argument we fought unmercifully all along. The non-point source in their last clean water bill we wrote have advanced positions on non-point source. Wonderful. We did our work in the Congress but the Administration wouldn't fund it and in fact neither would Congress fund it.

So these particular situations that we are faced with now, and I agree with you it is not just the sludge that is affecting our particular area, it is the whole issue. Why don't you write into the legislation they can't dump the material in the Staten Island landfill?

Those are the kinds of approaches we are going to have to take and I would support that. But no mayor has the right to come back and say to the people of the United States, we are not going to do it, we are going to use the courts. We have been at this for the last 20 years and New York City used the courts against this committee, against the Congress of the United States, as you pointed out.

Now, therefore, the time is overdue. I think if we can resolve the issue on the funding level so it no longer becomes the, what would you say? The impediment they are referring to at this moment, I think it is resolvable, then the issue is can we get out by that particular time and the issue is, yes we can.

I thank the gentleman for yielding.

Mr. Nowak. The gentleman from New York.

Mr. Molinari. No, I am finished.

Mr. Saxton. May I make one final point for wrapping up this panel?

Mr. Nowak. Well, we are not—Mr. Stangeland—if you would like to make a point before that.

Mr. Saxton. With regard to one item that was brought up. I have replaced Mr. Molinari's chart with a chart we have been using and with information provided to me in my office by the National Oceanic and Atmospheric Administration.

In the short time sludge has been dumped at the 106 mile site, and I do this because he pointed out with a red arrow the point at which it was dumped, that is the 106 mile site.

However, NOAA points out quite clearly the information they have is that there is a plume which has developed as a result of dumping at that site and that black ring on this chart which stretches from northern New Jersey all the way to North Carolina and closer to shore, much closer to shore than the 106 mile dump site itself represents what has been represented to me as the plume which has resulted from the dumping that has taken place during 1988 and part of 1987.

I just wanted to make that point clear.

Mr. Nowak. I thank the gentleman for that addition. I now turn to Congressman Stangeland for any questions he may have at this time.

Mr. **Stangeland**. I don't have too many questions of this panel, Mr. Chairman. I just thank them for being here.

Just a couple things I would like to point out however to Mr. Saxton one, and I think when you talk about infinite dispersal and you talk about infinite dispersal in an ocean and an infinite dispersal in an on-land burial site, you are talking apples and oranges because infinite dispersal means it can disperse infinitely.

Once you put it in land it absolutely accumulates. There can be very little dispersal. But when you put it in an ocean, yes, you have accumulation, but you also have some dispersal and I think in defense of ocean dumping, and I think our colleague Miss Schneider has done a super job in researching alternative technologies, but when dumping began I am sure many of these technologies just weren't there. I can recall being in LA four years ago when there were no rules at that time on sludge where their sludge was piling up and piling up. Somebody said you can't put it on land, and you can't burn it, because you will pollute the air, and you can't put it in the ocean.

Now, in Los Angeles, they have a wastewater treatment dispersal disposal in an outfall, in an ocean outfall. But they are required to go to secondary treatment in that disposal. And I am wondering, and I will ask this question later of EPA and of the New Jersey environmental people, how much degradation of the waters and beaches result from the fact that many, many, many municipalities in New York and New Jersey, and many other States as well, only do primary treatment and then discharge the wastewater, and if that isn't as harmful and perhaps more health-wise harmful to the utilizers of the beaches and the waters than the sludge dumping 106 miles out.

Now, I would guess that there is some real problems with a sludge dumping 106 miles out. And I am going to ask the EPA as well if they have done water quality assessments within 40 miles, where these crustaceans are being found to be deformed and all.

I think there ought to be water quality assessments, where is the sludge dispersing and where is the big impact? We have got a real problem, and as has been pointed out to me by some, the problem is more perception, but if it is a perception problem in the public's mind, it is a problem.

So I don't have questions of you. I think you may want to comment, Congressman Hughes, on the water quality problem. But other than that, I think for this panel, I don't have any questions.

Mr. **Hughes**. I want to make the point quickly that New Jersey has moved to secondary treatment. That is presenting its own problem as we find that we have algae booms every other year or so, because of oxygen depletion.

And there is no question that one of the contributors to that is the phosphates and the other nutrients that are going into the water a mile offshore. But I believe that there are two different issues, the sewage sludge dumping issue is an issue much different and more dangerous because of this plume that is beginning to really damage our fishery resources.

But we have gone to secondary treatment.

Mr. **Stangeland**. Thank you.

Mr. SAXTON. As Congressman Hughes has indicated, all of our outfall pipes that go into the oceans and bays and tributaries are secondary treatment, and it is also notable to point out that in Governor Kean's 14-point plan to combat various types of pollution in oceans and bays, he is committed to spend over $2 million on various projects, some of which are—much of which I should say—are designed to upgrade even the secondary treatment plants that we have now, particularly with the problem of combined sewer overflows which result in plastics flowing during heavy rainstorms.

So, yes, we are aware of that, and the State of New Jersey is doing what it can, I think to a large degree, with a large financial commitment to upgrade the system, even though they are already secondary treatment plants.

Ms. SCHNEIDER. If I might share with you as a member of the committee, being on EPA and NOAA subcommittees, they have identified a number of different materials found in the sewage sludge. Let me suggest that they are finding arsenic, cadmium, PCBs, mercury, lead, benzene and a dozen others.

What is interesting to note is that Time Magazine, this past June, did an article about the number of seals that were dying, and this was over in the North Sea. They said every year, six tons of chlorinated hydrocarbons, 11,500 tons of heavy metals and 1.5 million tons of nitrogen from fertilizers are deposited in the North Sea.

And liquid chemical wastes are dumped from West German ships into the sea. Well, now, the Minister of the Environment in Bonn has said that they intend to end offshore dumping by the end of 1989. The reason that he has made this public statement and has set his deadline are that there are dead seals washing up on the shores.

Let us hope that we don't have to see more dead things, dolphins, fish or people, floating upon our shores before we take stringent action.

Mr. NOWAK. Let me now turn to Congressman Packard from California.

Mr. PACKARD. Thank you, Mr. Chairman. I realize we have a vote on. I will be very brief.

I have no problem with the legislation, as it attempts to solve some of the problems between New York and New Jersey and surrounding States. I do have some concerns, however, about what it does to the West Coast, because that is where I represent, and we have a whole different set of problems.

I want to make certain that the bill does not have an adverse impact upon what we are trying to accomplish out there inadvertently. As an example, a year ago in the Clean Water Act, we were successful in getting approval of a research project in Orange County to determine the impact of sludge dumping in the ocean off of the Pacific Coast.

There were some very specific guidelines in this research, and your bill, by virtue of prohibiting any discharge after 1992, may impact this research project. The project was authorized to do technical and scientific studies on the impact of discharging sludge into the ocean under a controlled situation.

We don't believe that the intent of Congress is to stop scientific studies in this area, even though it seeks to stop ocean dumping of sludge. Therefore, I would like to ask Mr. Hughes if he would be amenable to report language permitting such a research project which was just authorized and to include this in the language of the bill, that would making certain that this project could be completed.

Mr. HUGHES. I think if the gentleman would bear with me, I believe that you pipe the sewage sludge, do you not?

Mr. PACKARD. Yes.

Mr. HUGHES. This does not cover it. However, I would not be adverse to report language that we would not intend to foreclose that research.

Mr. PACKARD. I will work with you on that. One last item, we have been struggling with for years is Tijuana sewage. They are now dumping raw sewage into the ocean, not five miles out, but, right on the beach, and of course, that is affecting San Diego city's beaches and surrounding areas. It is better that we put sludge into the ocean than raw sewage on the beaches, in my judgment, and we are struggling with that, trying to find an international solution.

I would hope if we find some language in this bill, that creates an impossible solution or circumstance regarding our deliberations with Mexico and the City of San Diego, then you would be able to work with us in that area, too.

Ms. SCHNEIDER. I think we ought to keep in mind that for the most part, raw sewage would be biodegradable, but it does include many of the toxics and heavy metals that I did mention earlier.

So, I don't know that we should choose one or the other. I think neither is acceptable.

Mr. PACKARD. We have been living with raw sewage for 20 years, and we are probably 10 years away from a solution now. There is no question, public health and public safety is much more at stake with raw sewage on our beaches than it is with sludge 106 miles out. I am not arguing for the dumping of sludge, but I am asking you to help us find a solution without adding further impact.

Thank you, Mr. Chairman.

Mr. NOWAK. Thank you.

Let us now turn to Dean Gallo from New Jersey, who has worked very hard along with his other colleagues on this particular subject matter, and acknowledging we have 10 minutes to get to the Floor for a vote and the final passage of S. 892.

Mr. Gallo?

Mr. GALLO. Thank you, Mr. Chairman.

First, let me commend Congressmen Hughes, Saxton, Congresswoman Schneider. This bill is something that is necessary. We have called our shoreline a gem, a jewel. It has been a major part of the tourist industry, our largest industry.

What I have read and viewed in recent months has hurt that industry, in many cases beyond repair. Time is the only thing that is going—to bring back the faith that the individuals had in the State of New Jersey shoreline.

I talked to Commissioner Dooling yesterday. He said we have 126 miles of beautiful beach, six miles of beach have been affected. But the publicity as a result of this has damaged the entire 126 miles. This is nothing to fool around with, and as Congressman Roe has indicated, this is something that has been before this Congress for a long time. An action has been taken, but ignored by States.

I am proud to say, as reported by Congressman Saxton, that Governor Kean has signed a law prohibiting dumping by municipalities in the State of New Jersey by March of 1991. And that is a difficult choice. That was a hard choice, and one that is going to be very costly to a number of municipalities, some of which I represent.

But I think the time has come where we have to make that hard decision, and I applaud you and the co-sponsors of which I am proud to be part of, along with Congressman Roe, in support of this. I think it is long overdue, and what we have got to do is act and act now.

Thank you.

Mr. NOWAK. I thank the gentleman, and let me express my gratitude to especially this panel, who have worked so hard in their own committees and in their own States with their respective Governors and State people on this problem to bring this to the State where we now have very definitive solutions, hopefully we can move forward with this legislation and gain a consensus very quickly here so that we will be ready to act on this legislation.

If we have further questions, we will certainly be back to you over the next day or two. Thank you again for your great contribution.

Mr. GILMAN. Thank you.

Mr. NOWAK. We now stand in recess for approximately 15 minutes until we can vote and come back and begin with our second panel, the United States Environmental Protection Agency. Thank you.

[Recess.]

[The prepared statements of representatives Gilman, Hughes, and Schneider follow:]

STATEMENT OF REPRESENTATIVE BENJAMIN A. GILMAN,
TWENTY-SECOND DISTRICT OF NEW YORK
BEFORE THE SUBCOMMITTEE ON WATER RESOURCES
OF THE COMMITTEE ON PUBLIC WORKS
REGARDING H.R. 4338, AMENDMENTS TO THE OCEAN DUMPING ACT.

AUGUST 2, 1988

MR. CHAIRMAN, MEMBERS OF THE COMMITTEE, I APPRECIATE THIS OPPORTUNITY TO TESTIFY ON H.R. 4338, LEGISLATION DEALING WITH THE CONTROVERSIAL AND COMPLEX TOPIC OF OCEAN DUMPING. MEMBERS OF THE CONGRESS AND CITIZENS OF THE NORTHEAST HAVE LONG BEEN AWARE OF THE PROBLEMS OF OCEAN POLLUTION ESCALATING TO NEAR EPIDEMIC PROPORTIONS. THE SEVERITY OF THIS THREAT TO OUR ENVIRONMENT HAS BEEN HIGHLIGHTED OVER THE PAST TWO SUCCESSIVE SUMMERS BY MASSIVE BEACH WASH-UPS THROUGHOUT THE NORTHEASTERN SEABOARD, AND WAS BROUGHT TO NATIONAL ATTENTION MOST RECENTLY WITH THE AUGUST 1, 1988, EDITIONS OF TIME AND NEWSWEEK, WHICH BOTH RAN COVER STORIES ON THE TRAGEDY OF POLLUTION AT SEA. PERMIT ME, THEREFORE, TO COMMEND THE DISTINGUISHED SUBCOMMITTEE CHAIRMAN, [MR. NOWAK OF NEW YORK], AND THE RANKING REPUBLICAN MEMBER, [MR. STANGELAND OF MINNESOTA], FOR CONVENING THIS TIMELY HEARING TO ADDRESS A PROBLEM WHICH PRESSES UPON THE NATIONAL CONSCIENCE.

H.R. 4338, THE LEGISLATION NOW BEFORE THE SUBCOMMITTEE FOR CONSIDERATION, IS INTENDED TO PROHIBIT THE OCEAN DUMPING OF MUNICIPAL SEWAGE SLUDGE BY DECEMBER 31, 1992. WHILE WE SUPPORT THE OBJECTIVE OF THIS WELL-INTENTIONED LEGISLATION, WE RECOMMEND THAT THE BILL AS REPORTED BY THE COMMITTEE ON MERCHANT MARINE AND FISHERIES ON JUNE 30, 1988, BE AMENDED TO PROVIDE SUFFICIENT TIME FOR OUR LOCAL MUNICIPALITIES TO COMPLY WITH THE NEW PROVISIONS OF THE LAW.

AS MY COLLEAGUES ARE AWARE, I REPRESENT A PORTION OF WESTCHESTER COUNTY, ONE OF THE NINE REMAINING MUNICIPALITIES CURRENTLY DUMPING SEWAGE SLUDGE AT THE

DEEPWATER MUNICIPAL SLUDGE SITE, 106 MILES OFF THE COAST OF NEW JERSEY. WESTCHESTER COUNTY IS FULLY WILLING TO DISCONTINUE ITS OCEAN DUMPING ACTIVITIES. COUNTY EXECUTIVE ANDREW O'ROURKE HAS WRITTEN TO ME, "I HAVE NO OBJECTIONS TO SEEKING A LAND BASED ALTERNATIVE FOR THE DISPOSAL OF SLUDGE; [HOWEVER,] IT IS IMPERATIVE THAT THE ALTERNATIVE SELECTED BE ENVIRONMENTALLY ACCEPTABLE." THE COUNTY HAS BEEN WORKING WITH THE REGIONAL OFFICE OF THE ENVIRONMENTAL PROTECTION AGENCY TO SELECT AN ALTERNATIVE DISPOSAL METHOD, AND MONIES HAVE BEEN APPROPRIATED IN THE COUNTY'S 1988 CAPITAL BUDGET FOR THIS PURPOSE. HOWEVER, THE SELECTION, DESIGN, LICENSING, AND CONSTRUCTION OF A SUITABLE PROJECT SITE WILL TAKE FROM EIGHT TO ELEVEN YEARS TO COMPLETE. THE EARLIEST, THEREFORE, THAT WESTCHESTER CAN BE REASONABLY EXPECTED TO GET OUT OF THE OCEAN IS BY JULY 1, 1996.

THE BASIC PREMISE OF H.R. 4338, HOWEVER, IS THAT SUITABLE LAND-BASED ALTERNATIVES TO THE OCEAN DISPOSAL OF SEWAGE SLUDGE ARE CURRENTLY AVAILABLE. IN WESTCHESTER COUNTY, THIS IS SIMPLY NOT THE CASE. WESTCHESTER CURRENTLY DUMPS AN ESTIMATED 15,400 DRY TONS OF SEWAGE SLUDGE PER YEAR AT THE 106 MILE SITE. COMBINED WITH THE DUMPING ACTIVITY OF NASSAU COUNTY, THIS REPRESENTS A TOTAL CONTRIBUTION OF 6.7 PERCENT OF THE DUMPING LICENSED BY THE EPA. IT IS IMPORTANT TO NOTE THAT THIS SLUDGE IS 95% WATER, CONTAINS NO FLOATABLES, AND BEARS NO SCIENTIFIC CONNECTION TO THE WASTE WASH-UPS CURRENTLY PLAGUING THE SHORELINES OF NEW YORK AND NEW JERSEY.

NONETHELESS, THERE IS NO DENYING OUR INTUITIVE

SUSPICION THAT THE OCEAN DISPOSAL OF SEWAGE SLUDGE MUST PRESENT SOME POTENTIALLY ADVERSE ENVIRONMENTAL CONSEQUENCES. TO USE THE MUCH-QUOTED PHRASE OF DR. STEPHEN JOSEPH, NEW YORK CITY'S HEALTH COMMISSIONER, "THE PLANET IS SENDING US A MESSAGE. WE CANNOT CONTINUE TO POLLUTE THE OCEANS WITH IMPUNITY." WHILE WE PURSUE THE WELL-INTENTIONED GOAL OF ELIMINATING OCEAN DUMPING, WE MUST TAKE EVERY PRECAUTION TO PRESERVE ENVIRONMENTAL INTEGRITY IN SELECTING AN ALTERNATIVE DISPOSAL METHOD. IT IS WITH THIS PRINCIPLE THAT THE PREMISE OF H.R. 4338 MUST BE MODERATED.

THE COMMITTEE IS AWARE OF THE STRONG ENVIRONMENTAL RECORD WHICH I HAVE MAINTAINED THROUGHOUT MY SIXTEEN YEARS IN THE CONGRESS. NONETHELESS, I URGE MY COLLEAGUES TO PROVIDE A MORE REASONABLE PERIOD OF TIME FOR COMPLIANCE WITH THE LAW IN ORDER TO AVOID AGGRAVATING THE CURRENT WASTE MANAGEMENT OBSTACLES FACING MY DISTRICT. WESTCHESTER CAN AND WILL GET OUT OF THE OCEAN, BUT WESTCHESTER MUST BE AFFORDED ADEQUATE TIME AND SUFFICIENT FLEXIBILITY TO OVERCOME THIS CHALLENGE IN A REASONABLE AND ENVIRONMENTALLY-SENSIBLE MANNER. I WOULD LOOK FORWARD TO WORKING WITH THE COMMITTEE TOWARD A COMPROMISE WHICH WOULD AFFECT THIS WORTHY OUTCOME.

THANK YOU FOR YOUR WILLINGNESS TO ENTERTAIN THE RELEVANT VIEWPOINTS ON ALL SIDES OF THIS MATTER.

TESTIMONY BY THE HONORABLE WILLIAM J. HUGHES,
M.C., BEFORE THE HOUSE SUBCOMMITTEE ON WATER
RESOURCES, AUGUST 2, 1988

THANK YOU VERY MUCH, MR. CHAIRMAN. I AM WILLIAM J. HUGHES, MEMBER OF CONGRESS, REPRESENTING NEW JERSEY'S SECOND CONGRESSIONAL DISTRICT. I APPRECIATE THE OPPORTUNITY TO TESTIFY TODAY IN SUPPORT OF H.R. 4338, LEGISLATION WHICH I INTRODUCED ALONG WITH REPRESENTATIVES JIM SAXTON OF NEW JERSEY, CLAUDINE SCHNEIDER OF RHODE ISLAND, TOM CARPER OF DELAWARE AND OTHERS TO BAN THE DUMPING OF MUNICIPAL AND INDUSTRIAL SLUDGE IN THE OCEAN AFTER 1992.

AS THE SUBCOMMITTEE MAY KNOW, H.R. 4338 WAS APPROVED UNANIMOUSLY BY THE MERCHANT MARINE AND FISHERIES COMMITTEE ON JUNE 9, 1988. THAT OVERWHELMING VOTE CLEARLY REFLECTS THE GROWING--INDEED URGENT--CONCERN IN CONGRESS ABOUT THE NEED TO STOP POLLUTING THE OCEAN. AND THAT'S JUST WHAT OCEAN DUMPING IS: THE CONTAMINATION OF THE MARINE ENVIRONMENT WITH LEAD, CADMIUM, MERCURY, ARSENIC, CHROMIUM, DDTs, PCBs, PATHOGENS AND OTHER TOXIC POLLUTANTS CONTAINED IN SEWAGE SLUDGE.

DURING 1988 ALONE, MORE THAN EIGHT MILLION WET TONS OF CONTAMINATED SEWAGE SLUDGE HAVE BEEN DUMPED IN THE OCEAN AT A SITE SOME 106 MILES OFF OUR COAST. SCIENTISTS HAVE FOUND THAT SOME OF THE PATHOGENS IN THE SEWAGE SLUDGE CAN SURVIVE FOR UP TO A YEAR IN THE OCEAN WATER AND SEDIMENTS, RAISING THE POSSIBILITY THAT THEY WILL BIOACCUMULATE AND ENTER THE FOOD CHAIN.

THIS MAY ALREADY BE HAPPENING. THERE HAVE BEEN REPORTS THAT FISHERMEN IN AND AROUND THE 106-MILE SITE ARE HAULING IN UNPRECEDENTED NUMBERS OF DISEASED FISH AND SHELLFISH. I'VE BROUGHT WITH ME SOME PHOTOGRAPHS TAKEN BY A FISHERMAN OF A DISEASED LOBSTER WHICH HE RECENTLY NETTED. I DON'T THINK IT'S A COINCIDENCE THAT THESE DISEASED FISH AND SHELLFISH BEGAN SHOWING UP WITHIN MONTHS AFTER THE 106-MILE SITE WAS OPENED TO SLUDGE DUMPING. I'M CONCERNED THAT THIS PROBLEM IS GOING TO WORSEN IF OCEAN DUMPING IS ALLOWED TO CONTINUE INDEFINITELY.

PERHAPS JUST AS DISTURBING IS THE FACT THAT ONLY A HANDFUL OF MUNICIPALITIES ARE RESPONSIBLE FOR THIS CONTAMINATION. ACROSS THE COUNTRY SOME 98 PERCENT OF ALL MUNICIPAL WASTE IS BEING DISPOSED OF RESPONSIBLY THROUGH SAFE, LAND-BASED PRACTICES. IN UPSTATE NEW YORK, FOR INSTANCE, BUFFALO DISPOSES OF ITS SEWAGE SLUDGE THROUGH INCINERATION. ROCHESTER, SYRACUSE AND ALBANY DISPOSE OF THEIR SLUDGE THROUGH LANDFILLING, INCINERATION OR COMPOSTING. THE SAME METHODS ARE USED BY SEATTLE, SAN DIEGO, LOS ANGELES, SAN FRANCISCO, DENVER, MIAMI, BOSTON, CHICAGO, DETROIT, PHILADELPHIA, WASHINGTON, D.C., AND ATLANTA.

THERE ARE ONLY NINE MUNICIPALITIES--SIX IN NORTHERN NEW JERSEY AND THREE IN NEW YORK--WHICH STILL DISPOSE OF THEIR WASTES IN THE OCEAN. THE PROBLEM ISN'T A LACK OF AVAILABLE ALTERNATIVES. THEY DO IT BECAUSE OCEAN DUMPING IS CHEAP AND IT'S CONVENIENT. IT'S OBVIOUS THAT THESE NINE MUNICIPALITIES HAVE NOT TRIED VERY HARD TO IDENTIFY LAND-BASED ALTERNATIVES, AND THAT THE EPA HAS NOT DONE ENOUGH TO PUSH THEM IN THAT DIRECTION. IT'S EQUALLY OBVIOUS THAT THESE NINE DUMPERS ARE NOT GOING TO GET OUT OF THE OCEAN ON THEIR OWN UNLESS CONGRESS PUTS THE FORCE OF LAW BEHIND A FIXED DEADLINE FOR THEM TO ABIDE BY.

THAT IS PRECISELY THE INTENT OF OUR LEGISLATION--TO ESTABLISH A FIRM DEADLINE TO END OCEAN DUMPING. H.R. 4338 ENCOURAGES MUNICIPALITIES TO ENTER INTO AN AGREEMENT WITH THE EPA THAT SPECIFIES REASONABLE DATES BY WHICH THEY MUST SWITCH TO ENVIRONMENTALLY-SOUND, LAND-BASED ALTERNATIVES.

PERMITTEES WHO CHOOSE NOT TO ENTER INTO A COMPLIANCE AGREEMENT WOULD BE REQUIRED TO PAY AN ESCALATING PER TON FEE FOR WASTE DUMPED INTO THE OCEAN. THESE FEES ARE INTENDED IN PART TO MAKE OCEAN DUMPING MORE EXPENSIVE, AND TO TAKE AWAY THE ECONOMIC ADVANTAGES OF OCEAN DISPOSAL. AT THE SAME TIME, THE REVENUES GENERATED FROM THE FEES WOULD BE USED TO IDENTIFY, DEVELOP AND IMPLEMENT ACCEPTABLE LAND-BASED DISPOSAL ALTERNATIVES.

OUR BILL ALSO IMPOSES AN OUTSIDE DEADLINE OF DECEMBER 31, 1992 TO END ALL OCEAN DUMPING OF SEWAGE SLUDGE AND INDUSTRIAL WASTES. THAT DEADLINE IS BOTH REALISTIC AND FAIR. ON THE INDUSTRIAL SIDE, THE DUPONT COMPANY HAS JUST MADE A RESPONSIBLE AND COMMENDABLE DECISION TO WITHDRAW ITS APPLICATION FOR AN OCEAN DUMPING PERMIT AND IS FINALLY GETTING OUT OF THE OCEAN. THAT LEAVES JUST ONE INDUSTRIAL DUMPER WITH A VALID PERMIT--ALLIED SIGNAL--AND I'M GOING TO BE LEADING THE FIGHT TO DENY AN EXTENSION OF THAT PERMIT WHEN IT EXPIRES NEXT MONTH.

ON THE MUNICIPAL SIDE, THE STATE OF NEW JERSEY IS FULLY COMMITTED TO ENDING ITS OCEAN DUMPING PRACTICES AND FINDING LAND-BASED ALTERNATIVES BY 1992. THIS WAS NOT AN EASY DECISION FOR NEW JERSEY TO MAKE BUT IT WAS THE RIGHT ONE. THERE IS NO VALID REASON WHY THE OTHER OCEAN DUMPERS, INCLUDING NEW YORK CITY, CANNOT BE EXPECTED TO MEET THIS COMPLIANCE SCHEDULE AS WELL.

THE TRUTH IS, NEW YORK CITY AND THE OTHER DUMPERS HAVE BEEN ON NOTICE FOR MORE THAN A DECADE NOW THAT OCEAN DUMPING IS UNACCEPTABLE AND HAS TO STOP. CONGRESS PASSED A LAW WHICH I WROTE IN 1977 WHICH BANNED HARMFUL OCEAN DUMPING AFTER DEVEMBER 31, 1981. MORE THAN 300 INDUSTRIES AND 100 MUNICIPALITIES WERE FORCED OUT OF THE OCEAN AS A RESULT OF THAT LAW. UNFORTUNATELY, THE LAW WAS NEVER FULLY IMPLEMENTED BECAUSE OF A LAST-MINUTE LEGAL CHALLENGE BY NEW YORK CITY WHICH THE EPA REFUSED TO CONTEST. THAT LEGAL MANEUVERING MAY HAVE BOUGHT THE DUMPERS SOME TIME, BUT IT NEVER CHANGED THE CONGRESSIONAL INTENT WITH REGARD TO THE OCEAN DUMPING MANDATE.

IN CLOSING, MR. CHAIRMAN, I CAN TELL YOU THAT I HAVE NEVER SEEN AS MUCH CONCERN ABOUT OCEAN POLLUTION AS THERE IS TODAY. I LIVE IN OCEAN CITY, NEW JERSEY, A RESORT COMMUNITY WHERE TOURISM IS THE LIFEBLOOD OF THE LOCAL ECONOMY. IN OCEAN CITY AND MANY OTHER RESORTS UP AND DOWN THE COAST, TOURISM IS DOWN THIS YEAR BECAUSE PEOPLE ARE CONCERNED ABOUT THE QUALITY OF THE OCEAN. THEY'RE WORRIED THAT THE WATER IS NOT SAFE TO SWIM IN, THE SEAFOOD IS NOT SAFE TO EAT AND THE BEACHES AREN'T SAFE TO WALK ON.

THERE ARE A LOT OF FACTORS CONTRIBUTING TO THIS PROBLEM, ONE OF WHICH IS OCEAN DUMPING. PASSAGE OF H.R. 4338 IS NOT GOING TO SOLVE ALL OF THESE PROBLEMS, BUT IT WILL BRING TO AN END ONE MAJOR SOURCE OF OCEAN POLLUTION. THE OCEANS BELONG TO ALL OF US, NOT JUST THOSE MUNICIPALITIES WHICH HAVE TURNED THEM INTO A PRIVATE DUMPING GROUND. I WOULD URGE THE SUBCOMMITTEE TO APPROVE THIS LEGISLATION AND BRING AN END TO OCEAN DUMPING ONCE AND FOR ALL.

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STATEMENT OF THE HONORABLE CLAUDINE SCHNEIDER AT THE HEARING ON OCEAN DUMPING BY THE SUBCOMMITTEE ON WATER RESOURCES -- AUGUST 2, 1988.

Thank you Mr. Chairman. I am glad to appear before this Subcommittee to address the important matter of ending the ocean dumping of sewage sludge as outlined in H.R. 4338.

Congress has been trying to stop the dumping of sewage sludge in our oceans well before I became a Member of Congress. In 1971 Congress intended to stop this dumping when it passed the Ocean Dumping Act. When I became a Member of Congress in 1981, all ocean dumping of sewage sludge was to cease by the end of that year. As we all know, that did not prove to be the case.

We are not here to single out any community for being solely responsible for the degradation of our oceans. Congress has been addressing ocean dumping as part of a comprehensive approach to clean up our oceans and to prevent further degradation. The 100th Congress has already passed legislation such as the Clean Water Act, the Antifoulant Paint Control Act, the Plastics Pollution Research and Control Act and the Senate has ratified MARPOL. These are all pieces of the complex puzzle that this Congress must address to further our goal of clean water.

In 1977 when Congress passed the 1981 deadline there were more than 100 municipalities that had permits or were seeking permits to dump sewage sludge at the 12 Mile Site. Since then all but nine of these municipalities have found alternative disposal methods and no longer dump sewage sludge in the ocean. One of these municipalities was the City of Philadelphia, which entered into a compliance agreement with EPA in 1979. By the fall of 1981 Philadelphia had found alternative disposal methods and was out of the ocean dumping business.

Moving the dump site further offshore in 1986 did not solve the problem it merely relocated it. The toxics and metals that are contained in the sludge dumped at the 106 Mile Site are horrifying. There are considerable amounts of arsenic, cadmium, PCB's, mercury, lead, chlordane, DDT, benzene, and dozens of others. And this is to the tune of over 8 million tons of sludge dumped every year containing these toxics. "Out of sight, out of mind" is not a policy that this Congress should be a part of.

These municipalities that are still dumping have been looking at alternatives since at least 1977. It is now time to start implementing those alternatives.

There are many alternatives to ocean dumping, and many of these turn sewage sludge into a beneficial, and profitable, product. There are 178 U.S. cities which are either operating or constructing composting facilities, which turn sludge into fertilizer. These profitable sludge utilization methods are used in major cities around the country, such as Chicago, Philadelphia, Washington,D.C., Milwaukee, Toledo, and Albany, N.Y.

Another effective means of utilizing sludge is co-disposal-- the incineration of both sludge and solid waste to produce heat and electricity. Modern co-disposal facilities are being constructed around the U.S. In Glen Cove, N.Y., in Nassau County, the city has constructed a model facility, which has resolved the city's sludge disposal problem, as well as saving the city $700,000 per year.

There are many other innovative and proven technologies for the beneficial use of sewage sludge. Bio-Tech of Ohio is a company that burns trash and sewage sludge and turns the waste into building bricks. These bricks pass all requirements for building materials. In Richland, Washington, Batelle Memorial Institute has a facility that turns sludge into No. 4 diesel fuel oil. They have contracted with a Florida company to open up a second plant devoted exclusively to this endeavor. There are clearly many viable alternatives to ocean dumping that can be utilized by these nine municipalities.

The concern of Rhode Islanders about the dumping of sewage sludge at the 106 Mile Site is not only of garbage or wastes washing up on our beaches-- it's about the devastation of our fishing industry. The commercial fishing industry is worth $3/4 billion to Rhode Island's economy every year. There are 7,000 Rhode Islanders employed either directly or indirectly by the fishing industry. In addition, the value of salt-water recreational fishing to my state's economy is worth well over $100 million annually.

I'm sure that we will be hearing about the increased costs that land disposal will have on the dumping communities of the New York area. But what are the economic costs that others may have to bear because of ocean dumping? Fishing is worth nearly $1 billion annually to the economy of my small state of Rhode Island. Consider the value of the industry in other northeast states-- and then think about the economic hardships if this sector of the economy is devastated. What are those costs? And who has to bear those costs?

The fishing industry is the only sector of the U.S. economy that currently has a trade surplus with Japan-- $1.1 billion. That surplus, however, is in danger. There are companies in my District that fish in areas near the 106 Mile Site. Their catches over the past 9 months, however, have dropped by over 50 percent, and these companies are in financial trouble.

There are lobstermen out of Point Judith, Rhode Island, who fish in the canyons of the continental shelf within 40 miles of the 106 Mile Site. Suddenly their catches are down 70 percent and 80 percent over last year. They are also catching a startling amount of lobsters and crabs that have lesions and burn holes in their shells, as well other deformities.

Sport fishermen have reported no catches in areas near the 106 Mile Site, where these same fishermen had excellent catches of tuna, marlin, mahi mahi, and other species of sport fish just two years ago.

We all know about the dolphin and whale deaths last year, as well as warnings against eating striped bass, bluefish and mackerel. It could all be just a coincidence that this is occurring soon after the 106 Mile Site was opened for mass use. But I don't want to sit around and wait for the proof when it may too late!

Municipalities have been dumping sewage sludge in the New York

Bight at the 12 Mile Site since 1924. I don't believe that there is any argument that this area is now a "dead sea". I do not want a repeat performance of that devastation anywhere-- and the only sure way of preventing such ecological and economic disasters is to stop the dumping of sewage sludge in all of our oceans.

H.R. 4338 recognizes the necessity to end ocean dumping as soon as possible, as well as the necessity to allow New York City to implement land based alternatives. This bill allows four years for this transition, as did the original 1981 ban that was passed in 1977. As Mayor Koch stated in 1979 when he testified before the Committee on Merchant Marine and Fisheries concerning the earlier ban -- "Simply stated, New York City's objection to the 1981 deadline is not a function, then, of its inability to meet the requirements of the law. We are not here because we cannot do what the law says; we are here to tell you that the law, which I voted for, in our judgement will hot meet the objectives that we want..."

H.R. 4338 also does not meet the objectives of New York City, which is to continue to utilize this inexpensive disposal method for as long as possible. But we must remember that Mayor Koch came before Congress in 1979 and clearly stated that the City could meet the 1981 deadline, but simply would prefer not to. It has been nearly a decade since the Mayor's statements, and now the City is claiming that it cannot meet a 1992 deadline. That will be 15 years since Congress passed the first ocean dumping ban, and that is more than enough time for the last holdouts to phase out their dumping. 95% of the sewage sludge produced in the United States is disposed of in a responsible manner. It is now time that 100% of our sludge is disposed of responsibly.

I urge all of the Members of this Committee to support H.R. 4338, and to vote against any attempts to weaken it. This bill will help ensure a clean, safe, healthy environment for our precious marine life and all of those who enjoy the unique pleasures that our seas have to offer.

Mr. **Nowak**. The subcommittee will come to order.

At this time, we want to take an official out of order, because of a prior commitment he has made, and because of the length of the very brief session we have had this morning with the members.

Let me call up Mr. Frank Pallone, a New Jersey State Senator, and second-term chairman of the committee responsible for the legislation out of New Jersey. Senator, I am sorry, we have backed up on the schedule here. As you see, the morning meeting with the members was a good resume of what we are faced with in trying to write this legislation.

I welcome you before the committee, and I might just mention that Mr. Pallone also resides in former Chairman Howard's District, and I understand has some ambitions of his own.

TESTIMONY OF HON. FRANK PALLONE, A STATE SENATOR FROM THE STATE OF NEW JERSEY

Mr. **Pallone**. Thank you, Mr. Chairman and members of the committee.

Let me first of all say that I appreciate your having me here today to express some of the concerns that we have at the Jersey shore, especially in the county that I represent in the State Senate.

It was mentioned that I chair the Senate Special Committee on Coastal Pollution. Our committee worked with Governor Kean and the State Assembly in putting together an ocean pollution package, a package of bills that included the 1991 deadline for ocean dumping of sewage sludge, as well as the pre-treatment legislation that went along with the 1991 deadline which I sponsored.

I just wanted to start out by saying that I could not over-emphasize the problems that we are facing right now at the Jersey shore because of ocean pollution. Every day in my office and repeatedly when I go down to the beach or the boardwalk, I am just bombarded with the fact that we are having such a tremendous problem with our local economy because of ocean pollution.

Restaurants, for example, in the area, the Monmouth area, are reporting 40 percent less business, beach clubs and concession stands are actually having to close because of the problems they face. We are also hearing from the real estate industry that rentals are down, and sales are down, and we are only talking about the short-term effects right now. In two or three years, the effects will be felt even stronger.

I am not, of course, suggesting that ocean dumping of sludge is the only reason for the problems we face. Many members of this committee and Congressmen who have testified have made it clear that ocean pollution is a problem that has many sources, not only ocean dumping of sludge, but the medical waste, the combined sewer overflow, the problems that we face with flotables from Fresh Kills and other sources.

But I want to stress that we feel, and I in particular feel, that ocean dumping of sewage sludge is a significant factor to beach closings. This summer has been the third summer in a row that we have faced these closings. I don't think there is any doubt that some of those closings have been related to the ocean dumping problem.

Our Senate Special Committee met last summer and received information from the State, the EPA and the Coast Guard that some of the problem with those closings may have been caused by short dumping, from those barges that were carrying material out to the sewage sludge dump site. We heard the barges may not have reached the site and caused their load of sludge to be unloaded before they got there, and some of that material came back to the shore, causing beach closing problems.

In addition, I would say that the long-term effects of sludge dumping are not necessarily things that you can see. We must consider the health effects, which the Congresswoman from Rhode Island mentioned to you, the complaints of people who say because they swim at the shore they get sick, I think that in the long run we will find that a lot of that is linked to the legal ocean dumping of sludge and the heavy metals and other chemical pollutants that come from the legal dumping of dredged materials at sea, not to mention the illegal dumping that we face at this time.

I wanted to get into a little detail about the legislation we passed on the State level. Of course, it was mentioned that we do have a March 17, 1991 deadline with regard to New Jersey's municipal authorities dumping their sewage sludge, and the bill that is before you today talks about a deadline for December of 1992.

Obviously, I would prefer, and the citizens of New Jersey, of course would prefer to see the deadline on the Federal level reflect a deadline that we now have on the State level. But I would say to you, Mr. Chairman and members of the committee, that at this point a set deadline, whether it be 1991 or 1992, is important to us, and that that deadline be as close as possible to the 1991 deadline that New Jersey has set.

So, even if you find that you cannot move up that deadline to 1991, and you settle on the 1992 deadline, we would be happy to see progress in that regard. Even though we talk about State legislation, about what New Jersey is doing, it is obviously going to be more effective to act on the Federal level, because it takes in New York, but it gives Federal sanction or support for what we are doing in the State of New Jersey.

I think myself that to halt ocean dumping it will be better in the long run to have the Federal Government say this is no longer going to be possible than for us to rely legally on what the State of New Jersey is doing.

Another factor to consider with the need for Federal legislation as opposed to what the State is doing is that my understanding is that you would, in effect, be saying that 106-mile site no longer can be used. Our New Jersey legislation forbids our dumpers from going out there and using it, but as long as the site continues to be open for New Jersey or New York municipal sewer authorities, that use will be a possibility.

So, I want to stress that I think the Federal legislation is very important, as far as New Jersey is concerned. Mention was made of the fact that we do not have penalties. That is entirely accurate. However, those are actually amendments to our State Water Pollution Control Act. And that Water Pollution Control Act does have penalties of up to $50,000 a day for each violation.

So we do have some penalties in effect with the 1991 deadline. But more importantly we have a second piece of legislation which requires pre-treatment of sludge pursuant to a schedule set up by the State Department of Environmental Protection. And that pretreatment schedule basically goes along with the 1991 deadline.

It requires that those municipal sewage authorities that are dumping in the ocean now have to meet the more stringent land-based criteria that now exists for those sewage authorities that dispose of the sewage sludge on land, and a phase in between now and 1991 for the same land-based criteria.

Also pursuant to that schedule, the DEP is going to get involved in siting of land-based alternatives and setting up the procedures, and also will consider the financial necessities which Congressman Roe mentioned in order to guarantee that we are able to meet the 1991 deadline.

So I do think that on the State level, we are not only setting the deadline, but we are also establishing a procedure through pretreatment, through siting of land-based alternatives so that we can meet that 1991 deadline.

I would add, and I think perhaps the most important thing that I could say today, is that we feel very strongly in New Jersey that the 1991 deadline can be met, and if it can be met by the State of New Jersey, I see no reason why a 1991 or 1992 deadline can't be met by New York or any other State.

The technology clearly exists. If they get moving now and put into place the siting that is necessary, they can meet that deadline. I have heard over and over again today that it will be difficult for New York to meet the deadline. There really is no truth to that, based on the technology and the precedents that exist with Philadelphia and Camden and other cities in the New Jersey metropolitan area that have had to devise alternatives to dispose of sewage sludge.

I just wanted to say, last of all, that I can't emphasize enough to the committee how important eliminating the ocean dumping of sewage sludge is in setting a precedent for ending all ocean dumping at sea, whether it be wood-burning, the chemical wastes that are now being dumped at sea; and how important a message this committee would be sending, not only to New Jersey, but to the other States and to the Nation by establishing this deadline.

Ocean pollution now is a problem that is devastating the Jersey shore. I think that this committee, by taking action on this piece of legislation, is going to be setting a precedent not only for the State of New Jersey but for the future of the Nation in terms of eliminating ocean pollution, establishing and once again clean water as a goal for our State, and for the Nation as a whole.

I thank you for the opportunity to testify today.

Mr. Nowak. Thank you very much, Senator. We will put your entire statement you have submitted in the record. I would just like to ask you one point that was made this morning by Congressman Molinari about "that alternative". Is the State of New Jersey trying to categorize, trying to help your municipalities, and they were referred to as private contractors, private corporations. I assume they have their own board of directors and run independently of the State bureaucracy, if you will. Is that correct?

Mr. **Pallone**. The Congressman, I think, had mentioned the Interstate Sanitation Commission. Is that what you are making reference to?

Mr. **Nowak**. And the Statten Island Dump that is perhaps an even bigger problem than the sludge.

Mr. **Pallone**. Exactly.

Mr. **Nowak**. How would that sit with New Jersey if that were chosen, what could be the consequences of that? As he said, that is going to be the low-cost alternative.

Mr. **Pallone**. Let me address two things, one the ISC, which I know the Congressman mentioned, and the Fresh Kills problem. He mentioned the Interstate Sanitation Commission and the fact there had been a problem between the two States having that organization continue and the budgeting for it.

I would point out New Jersey has been very supportive of the Interstate Sanitation Commission. I happen to be the Vice Chairman of our Appropriations Committee in the State. This year we actually increased funding for the Interstate Sanitation Commission. The problem has been with New York State, not the Legislature. The Legislature supported including funding for the ISC in their budget, but rather I believe both the State Department of Environmental Conservation, or whatever their environmental agency is called, as well as the Governor, had indicated that they were not supportive of continued funding for the ISC. So New Jersey, in that regard, has been very supportive of the ISC and the ISC has been a major factor in trying to eliminate the ocean pollution problem.

With regard to Fresh Kills, my special committee in the State Senate in fact urged the Attorney General, as well as the ISC, to bring suit against the City of New York to deal with the Fresh Kills problem. As the result of that suit, a consent order was entered into this past December which would try to alleviate the problems with regard to floatables coming from Fresh Kills. I am not entirely satisfied with the consent order, but the bottom line is our State EPA feels strongly the floatable situation has improved somewhat because of that consent order.

As far as using Fresh Kills for sludge dumping or for the material that would not be dumped at sea and instead transported to Fresh Kills, I would say a number of things. Number one, the life of Fresh Kills is only a few more years. New York City is going to have to deal and is, in fact, dealing with the problem that within the next few years, I don't know if it is five years, eight years, but I believe it is sometime in the mid 1990s, Fresh Kills will have reached capacity, and New York City is going to have to build resource recovery centers to deal with the garbage they can no longer bring to Fresh Kills. I would imagine the same phenomena would occur with regard to sludge materials. By the time you get to your 1992 deadline, they are probably going to have to deal with sludge through incineration and other possible land-based alternatives. The Fresh Kills landfill won't last much longer beyond the 1992 deadline, in my understanding, because it is rapidly filling up.

So I really don't see that alternative being used by New York. The most they could use it is for a couple of years, and they would have to use incineration or some of the other alternatives being proposed for garbage as well.

Mr. NOWAK. Thank you. Congressman Stangeland.

Mr. STANGELAND. Thank you, Mr. Chairman. Senator, you emphasize in your testimony the importance of land application criteria and management plans. How realistic is the New Jersey requirement all sludge meet land application criteria by March 17, 1991, the same day the dumping ban goes into effect?

Mr. PALLONE. When our State DEP testified on the deadline, as well as on the pretreatment of sludge, as did the various authorities that would be affected by it, the authorities, of course, complained they didn't have enough time. Our State DEP felt strongly they had enough time and that deadline could be met. Otherwise they wouldn't have suggested it.

There is no question the schedule is going to have to be accelerated, and a lot of money is going to have to be spent. In terms of siting, there may be those who don't particularly like the idea of some of the siting implications that are going to have to take effect. I think the deadline is possible, and you will get testimony here today from the DEP that basically will back up that position.

Mr. STANGELAND. In the case of a municipal sewer plant that determined they were going to incinerate rather than put into a landfill the sludge, would that sludge require a higher pretreatment than the current sludge being dumped in the ocean?

Mr. PALLONE. Yes, certainly. Right now the sludge being dumped in the ocean could not be incinerated. There is no question you have to pretreat it and meet those same land-based application guidelines before you would be able to incinerate it. It is too dirty, so to speak, right now.

Mr. STANGELAND. Well, if the land dump sludge is cleaner than the ocean dump sludge and we can improve treatment of all sludge, what greater risk at that point in time would that pretreated sludge suitable for land dumping, what would be the harmful effects of now then ocean dumping that sludge?

Mr. PALLONE. Well, I would say that an argument could be made that once this sludge is clean enough, you could dump it in the ocean, and at that point I suppose the ocean dumping of the sludge would not be as damaging as it is now. But no matter how much pretreatment you put into effect, you still have a certain amount of toxic materials in the sludge, and, therefore, it would be preferable not to have any ocean dumping of the sludge material at all, even if it is relatively clean sludge. It is never going to be clean enough not to have a damaging effect on the ocean.

Mr. ROE. Will the gentleman yield?

Mr. STANGELAND. I would be happy to yield.

Mr. ROE. You are making a very important point. I don't think we should let that float out there. When you speak of clean sludge, you are talking about taking out metals, you are taking out certain particular toxic materials, you are not talking about pathogens and so forth and so on. I think that has to be made very clear.

The assumption we are taking heavy metals out and, therefore, you could still dump the material is not the point you are making, I am sure.

Mr. PALLONE. Exactly. The point is the level of toxic material is going to be less, but it is never going to be clean enough that we would want to dump it in the ocean.

Mr. Stangeland. I assume some of the treatment will be incineration and some will be landfill, put the sludge in the landfill. What is the situation in New Jersey of adequate land available for siting landfill dump for sludge, or do you anticipate transporting that sludge to some other landfill in some other State, some other area of the country?

Mr. Pallone. New Jersey has very little landfill space available. We really face a crisis in terms of our landfills, and, therefore, there aren't that many places where we would be in a position to use sludge for landfill.

To some extent, it can be, though. If it is dried and it is used for landfill cover, you can use this sludge material alternating with your garbage. You put a layer—I am being simplistic about it—but the bottom line is you put a layer of garbage, then use some of the dried sludge for landfill cover. I would say, in general, much of that sludge is going to have to be incinerated.

Mr. Stangeland. I think I have no further questions, Mr. Chairman. Thank you, Senator.

Mr. Nowak. Thank you. Congressman Roe.

Mr. Roe. Thank you, Mr. Chairman.

I would like to pursue a little bit with you a couple points. The committee has received communications from two, that I am aware of, two of the sewage authorities in New Jersey, one being Passaic Valley. Passaic Valley, that was an early dialogue we had with Guy Molinari, Congressman Molinari, and they bring up the point of—let me read it for you, if I may.

"According to the bill, Passaic Valley would have to put up in the year 1989 $13,275,000. When you consider a total budget of approximately $10 million, you are increasing it by 26.5 percent, the next year, 1990, over the present budget, there will be an increase of approximately 42 percent", and they go on up through the year 1992, up to 55 percent, and he concludes the letter by saying, "I am attaching a schedule showing the approximate increase each committee based on the H.R. 4338. I am also attaching a memo from my plant superintendent showing how we calculated the totals for each year", and so forth. He talks about the agency going bankrupt. That is with the Federal bill.

Now, how are you dealing with this with the State bill? Whatever the decision is going to be as to whether they incinerate or whatever they do, they are going to be responsible. That is going to take time to build, which is part of the discussion. How did the State envision this to be financed?

Mr. Pallone. My understanding is that most of the cost is going to have to be absorbed by the sewage authorities themselves. There is no provision, certainly nothing of any great significance I am aware of, for any financing mechanism where the State would be providing a great deal of aid for those projects, and, therefore, we are talking about the burden being on the residents, taxpayers.

Mr. Roe. Their normal way of doing that would be to bond that, whatever the cost would be, I assume, and they probably bond it over a 20-25/year period, okay? Now that mechanism then being available, whether it is a Federal bill or not is the direction New Jersey would be going.

So that the letter that we received from Passaic Valley, their concern which I want to clarify—their concern is that under the fee program that is envisioned in the House bill, that they would have to raise those funds in a four-year period of time, at least as I understand it, and, therefore, gives rise to the 13.275 million, blah, blah, blah, blah, blah. Okay?

Why wouldn't it make practical sense to finance the Federal bill or give them the option to go out and float bonds as long as they provide the money in escrow?

Mr. PALLONE. What you have said, Congressman, makes perfect sense. I mean, provide the funding mechanism either through Federal legislation, or obviously, State to. But there is nothing on the State level at this point.

Mr. ROE. But eventually you would do it Statewide. If there were no Federal law, you would do it by the State.

Mr. PALLONE. Right.

Mr. ROE. Therefore, that obfuscates the issue of this great expense in a four-period of time spread out over a 20-year period of time, which is reasonable.

Mr. PALLONE. As well as the fact they are going to have to do it anyway pursuant to the State legislation.

Mr. ROE. Let me ask you just one more question then. When you talked about the landfill situation in Staten Island, the committee—what would you say to putting phraseology in the bill that would prohibit that?

Mr. PALLONE. I think that would be a great idea. But I would add the fact that the life of that landfill is limited in any case, so that it would certainly be a good idea to put that in because they may try to landfill the sludge on an interim basis until the landfill is no longer available.

Mr. ROE. Do you think, one more time, if I may, Mr. Chairman, the New Jersey setup, their program, if you recall, I have forgotten how much is in that, $300 million, $400 million, that revolving account.

Mr. PALLONE. The Waste Water Treatment Loan Fund.

Mr. ROE. Couldn't that possibly be amended if we had to amend that to provide an avenue of lower interest funds to the authorities? Could that be done in this case?

Mr. PALLONE. When you brought up that suggestion earlier about the financing mechanism, I was thinking of that fund as a possibility. To my knowledge, the way the waste water treatment program is set up now, The fund is used for upgrading from primary to secondary treatment or for expanding the capacity of the plant. I suppose, either under current law or an amendment, that might be a source of funds for sludge incinerators, or whatever.

Mr. ROE. Well, if you look at it objectively, the sludge is a product of the source disposal facilities in the first place.

Mr. PALLONE. Exactly.

Mr. ROE. It seems to me there should be no reason why that fund shouldn't be made available to those agencies in the State of New Jersey as part of their sewerage program. It would give them the advantage of having more flexibility in funding, it would give them the opportunity to be able to make longer-term loans to subsidize part of the interest, reduce the interest costs, so forth and so on, in fair play to all of the cities and towns involved. I think that is logical.

Mr. PALLONE. I agree. Now I don't have current knowledge of whether or not the existing law would allow that. I would say, though, that clearly if we are going to go in that direction, it is a good idea, but I would suspect we would have to expand the amount of money available through that program because I imagine a great deal of it is already committed to existing programs to upgrade treatment.

Mr. ROE. Therefore, that funding should be available four or five years down the road.

Mr. PALLONE. It could possibly. I will certainly pursue that after I leave here today.

Mr. ROE. I thank the Senator. I thank the chairman.

Mr. NOWAK. Mr. Gallo from New Jersey.

Mr. GALLO. Thank you, Mr. Chairman.

Senator, you had mentioned the law, that is now the law of the land in New Jersey, that establishes March of 1991, as the deadline to get out of the ocean. You also mentioned that incorporated in that law is a requirement for sewerage plants to be in secondary treatment by that time, too. Is that what your statement was?

Mr. PALLONE. No, I said there is a second bill, part of this package, which the Governor signed the same date, designed for pretreatment. So by 1991 the sludge generated by those who dump in the ocean now could be disposed of on land either through the incineration or other possible mechanisms.

Mr. GALLO. Because right now the State of New Jersey is going through a lot of problems dealing with the Clean Water Act. As of July we are required to be in an advanced stage in the treatment of our sewerage so we have got a combined problem.

One of the things I would be interested in knowing whether or not the committee, in the hearing process dealt with modern means of disposal, such as incineration. I think, throughout the State of New Jersey, and in other States there is a great deal of concern raised by the residents, not necessarily because of the cost, but because of the unknown, as to whether or not we are transferring a pollutant from a land base, through a landfill or ocean dumping, into a problem with the atmosphere and the pollutants that are released. Was there any discussion during your hearings from expert witnesses?

Mr. PALLONE. There was discussion, Congressman. In fact, some of the sewerage authorities testified some of them had made efforts to build incinerators and, in fact, had spent money to do the planning for incinerators. We were told by the State, either by the DEP or the Federal EPA, I don't know which at this point, that they couldn't do it because they wouldn't be able to meet the air quality standards.

But I think again the key to that is pretreatment. In other words, by putting in adequate pretreatment and meeting the land-based criteria that now exists for sludge that is incinerated on land in New Jersey, you would then make that sludge of a quality so that it could be incinerated in incinerators built to handle it, and it would meet the ambient air quality standards.

Yes, meeting the standards has definitely been a problem in the past and is one of the reasons why some of the proposals by some of the authorities to end ocean dumping were abandoned for lack of land-based alternatives.

Mr. GALLO. I know incineration works. In my own home town, back when I was on the Council, we went into investigating alternatives and we are tertiary treatment in that township. But we have had an incinerator for sludge and have jointly contracted with other towns to take care of their sludge.

But there is such a concern out there by the public. I witness it in Morris and Essex County which I represent, the thought is that maybe there is not a safe way of disposing it. The concern is out there, and we are dealing with such a short timeframe, which I do support. I find it difficult to see whether we are going to be able to get the public opinion, and the input of those individuals who have the responsibility to make that hard decision, in that timeframe.

Just as Congressman Roe talks about Passaic and their concerns about cost, I have the joint meeting of Sussex and Union County, which makes up a very large portion of my district, and that of Congressman Rodino's. There is a great concern there. I think the money is one concern, but I think that can be met by some suggestions that Congressman Roe was mentioning, such as possibly utilizing the fund at a lower interest rate for the financing mechanism.

Their concern is for getting the necessary approvals to be able to start. I would hope that when we get the experts testimony, we will be able to find out. Thank you very much for your testimony.

Mr. PALLONE. Thank you. And I just wanted to say, if I could, I know this committee, in particular under Jim Howard's chairmanship, all of you have been very supportive of the authorization of the Clean Water Act and providing the money that has allowed us to upgrade many of our sewage treatment plants. One of ours in Asbury Park just went from primary to secondary. It was opened just this past week and was dedicated. Most of the money for that plant came pursuant to the Clean Water Act.

Mr. NOWAK. If there are no further questions, Senator, we want to thank you for your testimony. We look forward to working with you.

Mr. PALLONE. Thank you very much.

[Senator Pallone's prepared statement follows:]

Statement by
SENATOR FRANK PALLONE
11th District of New Jersey
before the
SUBCOMMITTEE ON WATER RESOURCES
on H. R. 4338

August 2, 1988

Mr. Chairman, I am the chairman of the New Jersey State Senate Special Committee to Study Coastal and Ocean Pollution. In that capacity, and as the State Senator representing a constituency directly affected by continuing ocean pollution, I believe I can offer the Committee a valuable perspective on how we in New Jersey plan to end ocean dumping.

Legislation was signed into law July 11 in New Jersey mandating the termination of ocean dumping of sewage sludge by March 17, 1991. This is 21 months earlier than H.R. 4338 and nine months earlier than S. 2030. As chairman of the Special Committee, I have been very actively involved in trying to find a workable, logical means to assure that this deadline is met.

On the same day the Governor signed our state law, he also signed four other related bills, among them a bill I sponsored to require that all sludge meet land application criteria by March 17, 1991, the same day the dumping ban goes into effect. The main thrust of my bill is to end ocean dumping of sludge by taking away the main incentive to use the ocean--the fact that it is much easier to do so because of the the weak standards now in place. It is this piece of legislation, I believe, which makes the the sludge dumping ban achievable.

(continued)

We found that sludge currently used for land application is less contaminated with chemicals, pesticides and heavy metals than that which is ocean dumped. That is because the land-based sludge must meet certain management criteria. These criteria have been established by the state in its Statewide Sludge Management Plan adopted pursuant to the Solid Waste Management Act and the Federal Water Pollution Control Act Amendments.

The Environmental Protection Agency is in the process of preparing quality limits for all sludges based on existing land application criteria. However, the EPA model used to develop the criteria is based on a health risk or exposure indicator, which will skew the preferred alternative for sludge disposal towards the ocean, where there are fewer people, rather than away from it, as has been previously indicated to be EPA policy.

My bill contains four main provisions which are worth listing because it might help the Committee see how a strict schedule for achieving "cleaner" sludge can help sewage authorities meet the dumping ban.

The bill requires:

1. Within one year of enactment, all pretreatment permits shall include discharge limits based on the land-based sludge management criteria.

2. Beginning March 17, 1991, all sludge generated from municipal treatment works shall conform to the land-based sludge management criteria.

(continued)

3. The New Jersey Department of Environmental Protection shall prepare a plan for land disposal of sludge now dumped in the ocean. By April 30, 1989, each municipal treatment works shall develop a plan to implement land disposal and shall certify it to the DEP. DEP must submit those plans, along with recommendations, to the Governor and the Legislature by June 30, 1989.

4. DEP shall prepare a compliance schedule for the municipal treatment works including deadlines for submitting permit applications for land disposal. DEP is required to act on permit applications within six months. If DEP fails to act or fails to submit the plan required by by June 30, 1989, the deadline for termination of ocean dumping will be delayed a corresponding time.

The problem of ocean disposal of sewage sludge has existed for decades, but it wasn't until the last 10 or 15 years that it has been viewed as a real threat to the survival of marine life, the health of human beings and the vitality of local shore economies. Still, in this "high-tech" age, 15 years should have been long enough for us to find an environmentally acceptable alternative to ocean dumping. Clearly, there have been no quantum leaps made in applying available modern technology to solve this rather basic public problem.

I urge you to be skeptical of the witnesses who come before you and insist they cannot end the ocean dumping of sewage sludge by 1992. There is no lack of information regarding how to proceed properly and expeditiously toward land-based disposal. The cities of Camden and

(continued)

Philadelphia certainly found the means and the wherewithal to move to land disposal while dealing with all the same problems the current dumpers will have to resolve.

The authorities still using the ocean have been on notice since 1977 that the Congress of the United States did not support the continued use of these waters as a convenient sewer. Unfortunately, many chose to assume a "wait and see" posture and left in abeyance any steps they had taken toward alternative methods of disposal. It now appears the federal courts have made all the dispensations they are going to make. The judges are reflecting the public's mood. People have run out of patience. There are no more excuses.

Mr. Chairman, tourism in New Jersey is a $12 billion a year industry and authorities have estimated that we have already lost $3 billion due to ocean pollution problems. Even with the dumping at the 106-mile site, there is evidence of harm to marine creatures. Observations from a number of sources indicate that some instances of fin rot and other anomalies may be directly attributable to the dumping, causing harm to the tile and lobster fishing industries and perhaps others as well. Data is currently being collected and studied to determine the effects of ocean dumping on the health of swimmers.

You have heard and will continue to hear that ending ocean sludge dumping by 1992 is unreasonable and that it is unfair to pass a bill that is unreasonable. It is important to remember that the clock is not starting now on solving this dilemma. It started in 1977 when Congress first passed legislation to ban ocean dumping. In fact, you can even say that the clock started ticking in 1936 when the Interstate Sanitation Commission was established by court decree to protect the ocean and seashore communities from this kind of degradation. We are already 52 years behind schedule. We have run out of time and we simply cannot accept any more excuses.

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Mr. Nowak. Our next group of witnesses will be from the Environmental Protection Agency, Mr. Tudor T. Davies, Director of the Office of Marine and Estuarine Protection; and Mr. Richard Caspe, Director, Water Division, EPA Region 2.

Mr. Davies, if you would like to start the testimony. We have received your statement, and it will be incorporated in the record.

TESTIMONY OF TUDOR DAVIES, DIRECTOR, OFFICE OF MARINE AND ESTUARINE PROTECTION AND RICHARD CASPE, DIRECTOR, WATER DIVISION, EPA REGION 2

Mr. Davies. I thank you, Mr. Chairman.

We are here to testify on H.R. 4338, and Richard Caspe, the Water Management Division Director from Region 2, is here to give you specific background information on the sludge dumping activity at the 106 Site and talk about the feasibility and practicality of banning ocean disposal of sewage sludge. We in the agency have been concerned about the quality of the coastal environment, and Mr. Barnes and Mr. Thomas have made a number of statements about our concern, and we feel we have pushed very hard in the agency particularly in terms of municipal policy, to have municipalities in compliance with the Clean Water Act, with the pretreatment program and with industrial direct discharges regulations.

However, we feel we need to do a great deal more in the coastal area to remedy some of the problems in terms of managing combined sewer overflows, storm water, non-point sources, and particularly we are concerned about managing the impact of coastal population growth and development, which we see occurring at an enormous rate in this country.

The major issue is waste management and waste disposal. I would like to correct a misinterpretation we run into all the time that people are actually permitted to dump garbage in the ocean. As you gentlemen know, that is not so and has not been so for many, many years. The policy we are trying to work with in EPA is to push the concept of waste minimization, recycling, and re-use and promote beneficial uses of the waste material. Under the sewage sludge regulations, we are looking at developing both management practices for sewage sludge and regulations and criteria for the disposal of sludge.

The Agency policy and the Agency record on ocean disposal has been to strongly discourage ocean disposal of materials that can be recycled, re-used and re-treated. As you have seen over the last number of years, there has been a major decrease in the number of industrial dumpers that are permitted to dump in the ocean. The only sludge dumping that is permitted at this point in time in the ocean is at the 106 Site. Discharge from L.A. has ceased from pipe, and Boston is on a court-ordered schedule to stop discharging its sewage sludge into the Harbor.

We did have some discussion this morning about the Orange County research permit, but, in discussion with Orange County, that they do not think that ocean dumping is a highly practical alternative at this point in time.

We in the agency support the the development of environmentally acceptable alternatives to ocean disposal so that the dumping can cease as soon as practicable. We have outlined in our concerns about the structure of the bill in the prepared testimony and have discussed our technical comments with your staff.

If you move forward with this legislation, we request a clear and explicit direction from Congress so that the Agency can follow in it implementing the statute. I would like to ask Richard Caspe to give you some discussion on the status of our discussions with New York and New Jersey.

Mr. CASPE. Thank you.

I would like to start with some historical perspective. Sewage sludge had been dumped in the New York Bight since 1924. In recent years, nine dumpers, the City of New York, Westchester and Nassau Counties in New York, and six sewage authorities in New Jersey have continued the practice.

The volume of material dumped was about 8 million wet tons in 1987. EPA attempted to halt the ocean disposal of sludge by the end of 1981 under the terms of the Marine Protection Research and Sanctuaries Act.

However, in an action brought by New York City and duplicated in New Jersey, the Federal Courts ruled that EPA could not halt the dumping without seeking and evaluating detailed and comprehensive information relating to alternative disposal methods and their impacts.

Since that decision, the sludge dumpers have been operating under court order rather than MPRSA permits. In July of 1986, EPA notified the nine sludge generators they would be required to submit complete MPRSA permit applications for use of the 106 site. The existing court orders control disposal operations until such time as EPA has received and acted upon complete permit applications.

We received applications from the New York sludge generators on January 15, 1987. However, the six New Jersey authorities requested an additional six months to submit applications that would include a thorough evaluation of all possible disposal alternatives on an authority-by-authority basis.

On August 1, 1987, the New Jersey authorities submitted one application on behalf of all six. In November of 1987, Region 2 completed its review of the permit applications.

We found them to be incomplete in their evaluation of alternatives. We have sent letters to the applicants that read in part:

> Federal regulations require that a permittee continue to research all feasible alternatives to ocean dumping, including practical improvements in the process technology to reduce adverse sludge characteristics, and alternative locations or methods for sludge disposal or recycling before a permit can be issued.

The applications we had received showed that the studies for the alternate sludge disposal methods had been suspended in 1981. Therefore, the letters went on to say, "your application does not contain a current or viable analysis of land-based methods and technologies of sewage sludge disposal as they exist today."

We gave the applicants until January 19th of this year to submit this additional information. The applicants did submit additional information on incineration, landfilling and/or composting on January 19, and the region is now nearing completion of review of this information.

I would like now to bring you up to date on the monitoring at the 106-mile site. Much information on chemical and physical characteristics and base-line conditions at the 106-mile site already exist from studies performed during the past decade.

Between 1984 and 1986, for example, EPA conducted five base line studies of the site. These data were used to develop the current monitoring plan and will be used as a base line against which the results will be compared.

In August of 1987, EPA conducted a survey, that is last year, at the 106-mile site to track the dispersion and settling of the sludge plumes. Four ocean dumping events were monitored. Preliminary findings are that the plumes are extensive, mixed in the upper 20 meters of the water column, and they were transported horizontally by strong currents, they didn't go much below 20 meters.

The plumes were often tracked well outside the designated boundaries of the dump site for a period of up to eight hours or 10 miles outside of the site's boundaries. Water quality impacts are still being analyzed.

A second plume tracking survey to enable comparisons, seasonal differences in oceanographic conditions, was conducted in March of this year. And as far as getting the results of that, in the next week or so.

We have seen preliminary results already which somewhat confirm what the summer level of last year's survey showed. EPA is beginning a third survey in September of 1989 that will continue our efforts to ultimately address the far field fate of sludge dumped at the 106-mile site.

The New York Bight restoration plan, as mandated within the United States-Japan Fishery Agreement Approval Act of 1987, will provide EPA, along with other Federal and State agencies, with a workable strategy to address and manage environmental problems in the Bight, including sludge dumping at the 106-mile site.

As part of this plan, the New York Bight Restoration Plan Management Committee will review the monitoring data on a continuing basis and make periodic recommendations to EPA Region 2, which is the dump site management authority.

I want to go over quickly some of the complaints we have issued. As many of you are aware on July 14th of this year, EPA issued administrative complaints against all nine of the sewage authorities in New Jersey and New York that use the 106-mile site. We issued the complaints for violations between January and April of this year. We exercised our authority under the 1972 Ocean Dumping Act.

The penalties were assessed for the following reasons: In some cases, the sludge was discharged too quickly. In others, the vessel courses were too close to each other. In others, information critical to EPA's determination of compliance for discharge requirements had not been supplied.

The violations that we did uncover and for which we seek penalties were all as a result of information provided by the dumpers themselves.

In summation, EPA is moving ahead in a variety of ways, in conformance with the current statute. However, as presently drafted, H.R. 4338 would prohibit the dumping of sewage sludge in the ocean by December 31, 1992. In this regard, we have met with each of the sludge dumpers to assess what are achievable schedules for the phase-out on ocean dumping.

From the information gathered, we must conclude that it will not be possible for all ocean disposal by all of the sludge dumpers to cease by the December 31, 1992 proposed deadline. We are concerned that it may prove unwise and infeasible to select, design, site, construct and begin full operation of land-based disposal alternatives in the time frames allotted.

On the other hand, all sludge dumpers have now expressed a willingness to attempt to reach a technically feasible date for an end to ocean dumping. We are currently continuing negotiations toward achieving agreement on end dates and detailed enforceable schedules toward their achievement.

This concludes my remarks. We would be glad to answer any questions that you may have.

Mr. NOWAK. Thank you very much.

We are faced here in a relatively short time to look at these dates, and I wondered if you could outline to the committee what would be needed in the way of EPA approvals for any land-based alternatives to ocean disposal, and if you would refer to New Jersey's problems, and if there are any differences you find in the siting problems that may be incurred because of the physical land that is owned between the authorities in New Jersey and New York.

Mr. CASPE. Let me start with the second end of the question, if I can. In the City of New York at this stage of the game, there are no sites apparently selected nor available for location of land-based alternatives. There may be sites available, but they have not yet been selected and studied.

In the case of New Jersey communities, there are sites for many of them already in place and accepted. What I would say for New York City would be true in Westchester County, where there are no sites as yet selected.

In the case of Nassau County, it is a little bit in-between in that Nassau County, as do three of the New Jersey communities, has an existing de-watering facility that was in fact built with Federal funds prior to the 1981 date, so there is right now facilities for de-watering sludge.

However, what you would do with the sludge after you de-water it, still there is no site as yet, although Nassau County has already provided us with a schedule for phase-out of all ocean dumping.

With regard to what Federal approvals would be required, the only real Federal approvals would be that dealing with the Clean Air Act. Beyond that, there would be no Federal approval assuming we are not funding it, there are currently no funds available.

Mr. NOWAK. From your knowledge, what type of problems are incurred because of the Clean Air Act requirements?

Mr. CASPE. Obviously, I am not an expert on the Clean Air Act, but New York City is a non-attainment area certainly, as well as the whole metropolitan area—as you locate incinerators and try to build—if incinerators are in fact the solution, and start trying to build site incinerators, obviously you run into problems with the air impacts of it which might require, as somebody mentioned, additional pre-agreement by the municipalities as well as higher technologies that might be required in some other areas.

Mr. NOWAK. It has been brought to our attention the New Jersey siting problems and air pollution problems could perhaps be a lot easier to move that the ocean dumping to alternatives in that New York would have a longer kind of siting problem and approval problem because of the physical characteristics of the differences that you have already mentioned, which leads us to that very important consideration of the viability of meeting that 1992 deadline, knowing, working with the various municipalities, do you have an opinion as to whether or not that could be met especially by New York City?

Mr. CASPE. Yes. We have met and gone over in great detail with New York City a schedule we feel would be tight, but yet feasible and reasonable and have basically come to some at least preliminary agreement on a schedule would be feasible but yet tight. That would because of the siting problems in New York City and a variety of other problems, basically for a low-tech option, if they were to have it in place by the end of 1995, and that would be able to treat at least half the sludge and hopefully as much as 100 percent of this sludge.

And a high-tech schedule, through June 30, 1998; for construction and siting of incinerators or other high-tech type options like an incinerator. Those are basic schedules we feel are reasonable and fair that could be met.

Mr. NOWAK. Is that part of your testimony? Have you attached that schedule?

Mr. CASPE. That schedule is not attached to the testimony.

Mr. NOWAK. I wonder if you could submit it to us? Is that in writing now?

Mr. CASPE. We will have to wait for New York City to give their testimony as well, but I believe it is now something that we are attempting to reduce to——

Mr. NOWAK. That figure is from the City's request, differs from the City's request, your timetable.

Mr. CASPE. We have had some fairly extensive discussions with the City of New York. Yes, it does differ from their request, but I think they are prepared at this stage to comment favorably on it.

Mr. NOWAK. Congressman Stangeland?

Mr. STANGELAND. EPA has been in the business of regulating the dumping of sewage sludge since 1972. During that time, has EPA developed a position with respect to whether ocean dumping of sewage sludge is, on balance, an acceptable disposal option compared to other available alternatives, such as incineration, landfilling or composting, and if so, could you describe the agency's position on this?

Mr. DAVIES. What we have done, Congressman, is to look at both the issue of demonstrated need for ocean disposal and of unreasonable degradation of the marine environment from sludge; we concluded with Philadelphia, for instance, that there was unreasonable degradation of the marine environment.

One of the things that we have been concerned about is the definition of unreasonable degradation. This was our concern with the Sofer decision in terms of how that was determined. I think with the statute you are proposing now, the interpretation of unreasonable degradation is no longer an issue.

I think the position the agency has taken in the past is that we would like to see ocean dumping of sewage sludge to cease and land-based alternatives be used where possible.

Mr. Stangeland. So you are determined it is best to discontinue all ocean dumping of sewage sludge, that it is the most degrading option of whatever alternative is available?

Mr. Davies. We feel that dumping sewage sludge into the ocean is wasting an asset. It is irrecoverable if we put it into the ocean, and our preference would be to go with beneficial uses.

Mr. Stangeland. Along that line then, maybe this question is somewhat redundant, but have you done any analysis of the relationship of sludge quality, that is the extent to which the sludge has been pre-treated, to the overall adverse environmental consequences of ocean disposal?

And have you found cleaner sludge is safer or have you not done any work as far as that is concerned?

Mr. Davies. If we are looking at a sludge that has reduced levels of toxic materials such as metals and organics, then we see the assimilative capacity of the ocean largely able to handle that material. We moved the site from a shallow water site, the 12-mile site, where we saw putrification responses to the material. We would prefer to disperse at the 106-site for material that is large in nutrient material.

Mr. Stangeland. Mr. Caspe, I believe your testimony was that you found that the plume was congregating in the first 20 meters of the water. What is the procedure? Explain that to me—of ocean dumping? I gather you got a big pipe, you put the pipe down in the water and you let the sludge run through the pipe.

Mr. Caspe. Actually what it is, there are fairly large barges, the exact tonnage or length, I can't tell you. Some of them vary. New York City has four large barges and these barges are towed out by—it is a push-pull type operation. They are pulled out by tugboats. When they get out there, there are a series of valves that open up which allow the discharge into the waters at that stage of the game.

The barge has to be towed at a minimum speed in order to get the proper mixing at the site, and the minimum speed I believe is 3 knots.

If I can back up to your last question for a second, one of the requirements is that either four hours after the dump or at the edge of the site, whichever is more stringent—you have to meet certain criteria, water quality criteria, and some of the things in the sludge like heavy metals and things like that have been reviewed so as to predict what might and what might not be happening at the edge of the site.

And based upon that, you then go back and allow different discharge rates; in other words, how much do you open that pipe up? The current discharge rates are 15,500 gallons per minute, to give you an idea how much of it is discharged. And that wasn't really based on scientific, what was right for water quality.

It was more based upon the 12-mile site, the need to let these barges get away from the 12-mile site rather quickly so it didn't interfere with shipping. It was a rather small site, a different location. We are now coming up and should be working with the sludge dumpers in the next month or so, that should come up with a technical criteria for what proper discharge rates should be to protect water quality at the site.

We suspect that the 15,500-gallon per minute number will be significantly reduced based upon this.

Mr. **Stangeland**. Is there not technology available or is it not feasible to do a deep water discharge?

Does this stuff come right back up and plume on the top?

It would seem to me that you are discharging in water that has extreme depths, I understand. And if it was technically feasible to discharge that at 100 meters, what would happen?

Mr. **Davies**. This is fresh water and fresh water is buoyant in the sea, so it would tend to float on the surface. So if you put it down into deep water, it would either mix or come back to the surface. One of the concerns that has been expressed here today is that we do not impact bottom-living organisms with this material. From that standpoint it would be preferable to dispense the sludge in the surface waters.

Mr. **Stangeland**. I see. Could you give the committee your assessment of the environmental risks associated with the ocean dumping of hydrochloric acid in the New York Bight? What are the relative costs and environmental consequences of alternative disposal options for this waste?

Mr. **Caspe**. There is one dumper that you are aware of who dumps acid waste. We have been trying to review and weigh the different impacts of that versus land-based disposal alternatives.

One of the land-based alternatives would be to clean up the hydrochloric acid and sell it and use it on land, which is certainly much, much preferred. We recently returned the application because we didn't feel that it had really weighed all the environmental benefits and updated us on the impacts of what was actually occurring at the 12-mile site. It was based upon a lot of data that was what we felt, somewhat outdated.

We wanted an update on the technology. We haven't yet been presented with the data we think we need to weigh the alternatives.

Mr. **Davies**. If I may add perhaps a tangible story to that. I think one of the successes in the ocean dumping program has been in terms of some of the acid wastes that were dumped have now been converted to beneficial uses and the acid has been sold rather than been dumped and wasted.

Mr. **Stangeland**. For some time now the Congress has required the development of comprehensive sludge regulations which evaluate various disposal alternatives and methods. What is the current status of those regulations?

Do they compare the relative environmental risks associated with different disposal options and could you tell us how those regulations would affect the dumping of sewage and sludge?

Mr. **Davies**. I don't have the exact date at the tip of my fingers, but there are two parts. One is a management regulation and the other is a regulation that sets criteria and assesses the risk for the various management options and develops a regulation for the disposal of sewage and sludge.

Mr. **Stangeland**. Could you provide us with a set of those regulations and a time table?

Mr. **Davies**. We certainly can provide you with the time table.

Mr. **Stangeland**. It is my understanding that a commercial concern has proposed development of an incineration at sea option for sewage and sludge as part of a co-disposal plan for the burning of municipal solid waste and similarly I understand that the National Oceanic and Atmospheric Administration is looking at a sludge disposal option which involves drilling and burial under the sea bed.

Could you give us your assessment of how viable these options are and how far away they are from implementation?

What changes would be needed to allow these options to be studied and if found to be justified, implemented?

Mr. **Davies**. Let me answer the first part of the question first.

The Agency was developing ocean incineration regulations for liquid hazardous waste. Because of new, higher priority requirements under the Clean Water Act the Agency has suspended activities and we feel at this point we would need to regulate ocean incineration of garbage and sewage and sludge and do not have a regulation developed for that and we are not currently working on one.

We have had expressions of interest from a number of parties in this issue but we feel perhaps that we would like to see some congressional direction in terms of the acceptability of this issue.

Secondly, the NOAA technique that you are talking about is something that is strictly a research technique at this point in time and it does not look as if it is anywhere near strict commercial application.

And I believe that the NOAA proposal is simply a proposal in a future strategy rather than an ongoing activity.

Mr. **Stangeland**. Should we be pursuing these?

As I recall in the Clean Water Act we had a provision there that would have allowed a private company to do the ocean incineration of hazardous waste. And their permit application was rejected by EPA to the point where they just discontinued even pursuing it.

Mr. **Davies**. Ocean incineration by, I guess, decision of the Congress or perhaps it was by our general counsel, is regulated under the Marine Protection Research and Sanctuaries Act, and I have no recollection of anything in the Clean Water Act that talks about ocean incineration.

The Agency was developing ocean incineration regulations and it has suspended developing those regulations at this time and we have put the resource to other activities.

There was a chemical waste management company that had been pursuing permits with EPA and they have notified us that they are no longer interested in incinerating in the North American market.

Mr. **Stangeland**. Last week the Administrator of EPA announced that a number of major municipalities around the country were discharging effluent into the oceans from sewage treatment plants which did not yet have secondary treatment as required under the Clean Water Act.

A number of the municipalities in the New York, New Jersey area fall into this category. Could you give the committee an assessment of whether these discharges pose an equal or greater threat to human health and welfare or the marine environment than the discharge of sewage and sludge at the 106 mile site?

Mr. CASPE. To clarify on that point, there are several New Jersey communities that we have been in court with and are still in court with to try to get them to agree to schedules to upgrade to secondary treatment that are located along the Hudson in particular. Also, New York City treatment plants, two of them that have not reached it yet.

It is our general belief, and we do have several studies which will bear out further, that the discharges from the sewage treatment plants are having a much larger impact on the New York Bight as well as apex. But we are continuing our monitoring.

We are continuing, as you are aware, we have an estuary study that is now under way. We are looking at the estuary in detail. We have a restoration plan where we are trying to look at all the ocean problems and come up with a very clear assessment, picking up largely on studies that have previously been done that will show what really are the causes of the problems that we are experiencing in the area.

But the short of it is that the sludge will be a relatively—the sludge we expect will be a relatively small portion of the overall problem.

Mr. STANGELAND. Well, I know the sludge is a problem, but I think that is a point that ought to be made. As I remember, California was not allowed to discharge water from a waste water treatment plant into an ocean outfall, any warm water environment that would break down whatever material of matter that was out there unless it had secondary treatment and here we are discharging waters on the Atlantic in a colder water environment from primary treated sewage and that probably is more degrading to the shores and the beaches and the health of people who swim in the water than what the sludge is.

And I think that point ought to be followed through.

Mr. DAVIES. May I comment?

Mr. STANGELAND. Surely.

Mr. DAVIES. Our big concern in the coastal water is land-based sources of pollution and we would particularly like you and the Congress to pay specific attention to the Merchant Marines and Fisheries Committee's hearings on the problems in coastal waters.

In the California case, under the Clean Water Act, you have allowed municipalities to make an application for a waiver from secondary treatment if they could show that there would not be significant degradation of the marine environment.

A number of waivers have been granted. No waivers were given in the New Jersey, New York or on the southern Atlantic coast area.

And I think the process has been one of reviewing the individual discharge, modelling the expected impact, looking to see if a balanced indigenous population was retained, and, if not, no waiver was given to those municipalities.

Mr. **Stangeland.** Have you been able to—have you been able to identify the source of the medical waste that has been washing up on the beaches recently in New York and New Jersey that has gotten all the publicity and is there any connection between that waste and the dumping of sewage and sludge at the 106 mile site?

Mr. **Caspe.** It is a combination of things. Let me start off at the end of it first.

We don't believe there is any link at all to sludge dumping. Last summer when we had some early incidents in May, actually, we went and we trailed nets, very fine nets behind sludge barges on our own vessels.

We cast what actually are scallop dredges into the holes of the barges, very pleasant job, and pulled them up afterwards to see what we found.

We found no sign of floatables whatsoever.

We did find very, very small styrofoam pellets, but none of the large plastics or floatables that are now plaguing the shore.

As far as what the causes are, there are several causes.

One is certainly the landfill operations and the marine transfer operations within the city of New York and elsewhere. Another is general fact that people in the New York metropolitan area appear to leave the beaches somewhat dirty and leave the streets somewhat dirty and when it rains and we have high tides and the combination of the two, including an outwash of the bays and inlets, you certainly have discharges which bring floatables in.

We also think there may very well be some illegal activities that we are looking into a little bit further. And, of course, combined sewer overflows, you know, as we talked, is certainly part of that. There is a variety of things.

We don't think that there is any one thing we could do to solve the problem. We think it is a series of things that we might be able to do to bring the problem down 20 percent at a time or something like that.

Mr. **Stangeland.** We are talking about penalties for ocean dumping of sludge. What kind of penalties are there if you catch somebody illegally dumping?

Mr. **Caspe.** Those would be criminal penalties. The sanctions under MPRSA are $50,000 per event, for civil action and that is dumping with a permit. If it were without a permit, we would expect to go criminal.

Mr. **Stangeland.** How are we on time?

Okay. I have just one question I think can be handled before we have to go and vote and then I have my questions completed, Mr. Chairman.

Have you been able to determine the cause of burn holes in crustaceans or the reported decline of fishing catches in the North Atlantic? Is there any evidence or informed speculation as to whether these develops are connected to sewage and sludge and the final question that Congressman Snyder asked, do you concur that the 12-mile site is now a dead sea because of ocean dumping?

Mr. DAVIES. I do not think that it is a dead sea. I think it has been degraded by the dumping of sludge, unreasonably degraded, which is why we closed the site and moved to the 106 site.

In terms of the diseases, we are not sure that a relationship has been established between dumping and the disease. We are working with National Marine Fisheries at the moment to assess the disease, to look for causes and also to look at the disease history of these sorts of animals to see if they have occurred at other places at other times that are unrelated to sewage and sludge dumping, we are also looking at some analysis of the tissue of these animals and the pathology of these animals at this point in time.

I don't think at this point a relationship has been established.

Mr. STANGELAND. Thank you, Mr. Davies and Mr. Capse.

Mr. NOWAK. When you talked about the 12 mile analysis of what has happened there and you—can you describe that in more detail for the committee or do you have a printed position on that question?

Mr. DAVIES. We have quite extensive documentation on the results of surveys that we made at the 12 mile site and we have been working with the National Fisheries to look at the recovery of that site since dumping has ceased.

And we could supply that for the record if you would like that.

Mr. NOWAK. Is the recovery started?

Is it looked at as a success?

Mr. DAVIES. We only have preliminary information. The dumping has only ceased completely since December of last year.

Mr. CASPE. That is right.

Mr. NOWAK. Well, we will take a short break and when we come back, Mr. Molinari will be the first questioner.

Thank you.

[Recess.]

Mr. NOWAK. The subcommittee will come to order.

Due to a mark-up that Congressman Molinari had in another committee, he will not be able to pursue any questions at this time. However, he did request that the record be left open for a panel to accept questions and perhaps will be back to you or Allie by phone as soon as he can return at a later time.

And we would hope that we can clear this matter up in the next day or two, so we will probably give you a call at your respective offices.

Mr. DAVIES. Thank you. Mr. Chairman, could I say that I have the regulatory schedule for the sludge regulations here and I would like to introduce that into the record, please.

Mr. NOWAK. We will accept those regulations in the record and turn now to Congressman Thomas Manton, whose plane was a little late this morning.

Thank you, gentlemen, for your extensive testimony that has been made a part of the record.

[The information received from Mr. Davies follows:]

AMSA/EPA MEETING
ON
LITIGATION, REGULATORY SCHEDULES AND
NATIONAL SEWAGE SLUDGE SURVEY

JUNE 22,1988

AGENDA

I. SEWAGE SLUDGE TASK FORCE

II. BACKGROUND

III. LITIGATION

IV. REGULATORY SCHEDULES

V. NATIONAL SEWAGE SLUDGE SURVEY

VI. ACTIVITIES SUBSEQUENT TO PROPOSAL

I. SEWAGE SLUDGE TASK FORCE

°In January, 1988, a Sewage Sludge Task Force was created in the Office of Water Regulations and Standards (OWRS) to expedite the proposal of the rule, to serve as a focal point for sewage sludge related issues and to conduct the National Sewage Sludge Survey.

°The Task Force consists of individuals primarily from divisions within OWRS, but also includes individuals from other program offices as needed.

°Attached are the names and phone numbers of the primary Task Force members (see Attachment 1).

II. BACKGROUND

°The 1987 amendments to the Clean Water Act (CWA) made substantial changes in Section 405 (d) and (e) and added Section 405 (f).

° Section 405 (d) and (f) require the Agency to propose and promulgate regulations in accordance with the following schedules:

-by December 15, 1986 promulgate procedures for approving state permit programs.

-by November 30, 1986 propose and by August 31, 1987 promulgate regulations that establish numeric limits and management practices..."adequate to protect public health and the environment from any reasonably anticipated adverse effects of each pollutant."

-by July 31, 1987 propose and by June 15, 1988 promulgate regulations for toxic pollutants that were not included in the August 31, 1987 regulations.

°OWEP is developing the state program management regulations (40 CFR Part 501) and modifying the NPDES regulations (40 CFR Parts 122-124. On March 9, 1988, state program management regulations were re-proposed and modifications to the NPDES regulations were proposed (53 FR 7642).

°OWRS is developing the technical regulations (40 CFR Part 503) for 5 disposal practices (land application, distribution and marketing, monofilling, incineration in sludge-only facilities, and ocean disposal), but not for the co-disposal of sewage sludge with solid waste in municipal landfills.

°OSW is developing the requirements for the co-disposal of sewage sludge with solid waste in municipal landfills (40 CFR Part 258). These regulations will be proposed under the joint authority of Subtitle D of RCRA and Section 405 (d) of CWA in a manner similar to existing regulations on the landfilling and land application of sewage sludge in 40 CFR Part 257.

°On March 3, 1988 an Options Selection Meeting was held with the Administrator to select an appropriate regulatory approach.

III. LITIGATION

°On March 10, 1988, the Natural Resources Defense Council (NRDC) filed suit against the Agency in the U.S. District Court for Eastern Pennsylvania for failing to meet the statutory schedules. NRDC v. Thomas. NRDC properly completed service on the Department of Justice in the suit on May 5, 1988.

°The Court recently granted the petition of the Association of Metropolitan Sewage Agencies (AMSA) to intervene as a plaintiff in the litigation. The Court has not yet acted on the petition of the Leather Industries Association to intervene.

°On April 1, 1988, NRDC submitted extensive interrogatories and requests for production of documents. The interrogatories generally cover:

-historical and prospective information on budget requests, resources, contracts, personnel and data used by the Agency in developing the regulations;

-information on the coverage of the regulations, the Administrator's Options Selection Meetings and the impact of the Vinyl Chloride decision on the rules; and

-schedules for proposal and promulgation of the management and technical regulations (both rounds).

IV. REGULATORY SCHEDULES

°State program management and permitting regulations.

-Proposal: March 9, 1988, 53 FR 7642
-Promulgation: April 20, 1988 (see Attachment 2)

°Part 503 technical regulations round 1

-Proposal: April 28, 1989 (see Attachment 3)
-Promulgation: October 8, 1991 (see Attachment 4)

°Part 503 technical regulation round 2

-Based on the National Sewage Sludge Survey, the Administrator will make a determination on which pollutants and the schedule for proposal and promulgation of a second round of regulation (see Attachment 5).

°Part 258 regulation on sewage sludge disposal of in municipal landfills

-Proposal: August 8, 1988 (see Attachment 6)
-Promulgation: December 19, 1989 (see Attachment 6)

V. NATIONAL SEWAGE SLUDGE SURVEY

°BACKGROUND

-The available data on sewage sludge is either not current or not uniform. These data deficiencies mean many questions cannot be adequately addressed, for example,

--what are the risks associated with current sludge disposal practices,
--how many POTWs will have to change their disposal operations or improve the quality of their sludge,
--do these POTWs have alternative disposal options,
--what is the economic impact of the regulations on the POTWs.

-As part of the Administrator's Option Selection process, the OW committed to collect data on the composition of sewage sludge to correct these deficiencies to support the final regulation. The OW is fulfilling that commitment by undertaking the National Sewage Sludge Survey (NSSS).

°AUTHORITY

-Section 308 of the CWA.

°DESCRIPTION

-The NSSS is a questionnaire and analytical survey of POTWs intended to produce national estimates of

--concentrations of toxic contaminants in municipal sludge,
--sludge generation and treatment processes,
--sludge disposal practices and alternative disposal practices, and
--treatment and disposal costs.

-The survey will provide reliable, current data that can be used in the RIA and ARA to project impacts and benefits to support promulgation of the first round technical regulation. It will also identify pollutants to be regulated in the second round.

•FACTS AND FIGURES

-Facilities

--Analytical sampling will be conducted at 208 POTWS randomly selected from the universe of approximately 11,000 employing secondary or better treatment.

--The questionnaire will be sent to 479 POTWs randomly selected from the same universe. The 208 POTWs are a subset of the 479. The questionnaires will be distributed by registered mail with follow-up phone calls.

--Each sample is constructed to allow analysis by 4 POTW size groups as measured by wastewater flow (see Attachment 7):

---small - less than 1 MGD
---medium - between 1 and 10 MGD
---large - between 10 and 100 MGD
---very large - greater than 100 MGD

-Pollutants

--Samples will be analyzed for a total of 419 analytes. It includes every organic, pesticide, PCB for which we have GC/MS standards. The balance are metals and inorganics. The pollutants were also selected in consideration of,

---the CWA §307(a) priority pollutants,
---toxic compounds highlighted in the Domestic Sewage Study,
---RCRA Appendix VIII pollutants, and
---contaminants of suspected concern in municipal sludge.

--A portion of the samples will be archived for subsequent analysis for dioxins and dibenzofurans.

-Sample Collection and Analysis

--EPA contract personnel and laboratories will collect and analyze the samples.

°SCHEDULE

-The schedules call for initiation of the field aspects of the NSSS this summer and early fall. Completion and contractor delivery of the final data bases for both the analytical and questionnaire surveys is scheduled for October 1, 1989. At that time, we will begin our review and analysis of the data.

°STATUS

-Coordination/Review Process

--The methodology, analytical protocols and questionnaire have all been distributed to all interested program offices (OMPC, OWEP, OTS, OPP, ORD, OSW) for review and comment. They have now been revised in response to comments.

-Pre-Test

--The analytical survey and the questionnaire are currently being pre-tested to work out any final problems.

VI. ACTIVITIES SUBSEQUENT TO PROPOSAL

°Analyze the data from the National Sewage Sludge Survey.

°Notice the availability of the data and the analyses.

°Re-evaluate the approach in the rule based on public comment and the National Sewage Sludge Survey and re-propose if necessary

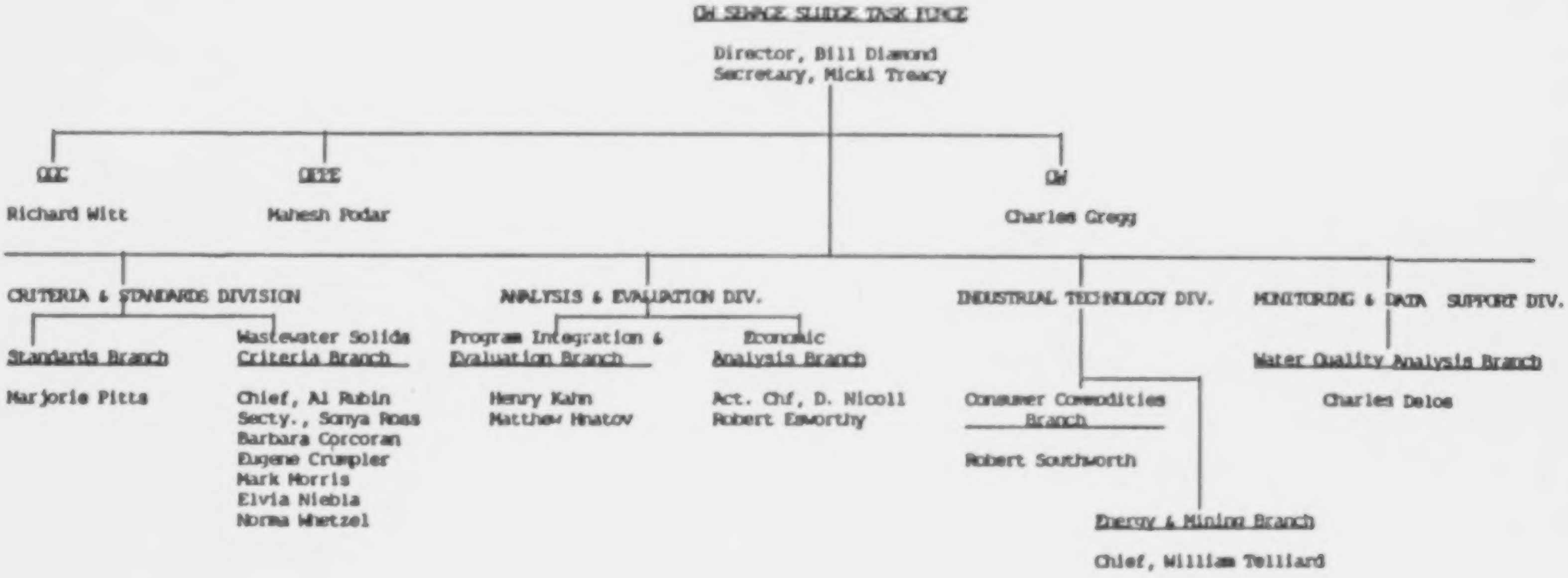
°Begin work on second round.

°Prepare first round for promulgation.

Attachment 1

OW SEWAGE SLUDGE TASK FORCE

OFFICE	MEMBER	TITLE	TELEPHONE	ROOM	MAIL CODE
1. OWRS	William Diamond	Task Force Director Supervisory Attorney	382-7142	915ET	WH-551
	Maureen Treacy	Task Force Secretary	382-7142	915ET	WH-551
2. CSD	Alan Rubin	Chief, Waste Water Solids Criteria Branch	475-7311	829ET	WH-585
	Marjorie Pitts	Environmental Protection Specialist	475-7304	829ET	WH-585
	Barbara Corcoran	Chemist	475-7332	947ET	WH-585
	Eugene Crumpler	Environmental Engineer	475-7310	829ET	WH-585
	Mark Morris	Environmental Engineer	475-7312	833ET	WH-585
	Elvia Niebla	Soil Scientist	475-7309	839ET	WH-585
	Norma Whetzel	Chemist	475-7313	833ET	WH-585
	Sonya Ross	Secretary	475-7301	829ET	WH-585
3. AED	Debra Nicoll	Acting Chief, Economic Analysis Branch	382-5385	731ET	WH-586
	Henry Kahn	Supervisory Statistician	382-5406	731ET	WH-586
	Robert Esworthy	Economist	382-5398	731ET	WH-586
	Matt Hnatov	Statistician	382-5412	733ET	WH-586


OW SEWAGE SLUDGE TASK FORCE
Director, Bill Diamond
Secretary, Micki Treacy
OGC
Richard Witt
OPPE
Mahesh Podar
OW
Charles Gregg
CRITERIA & STANDARDS DIVISION
Standards Branch
Marjorie Pitts
Wastewater Solids Criteria Branch
Chief, Al Rubin
Secty., Sonya Ross
Barbara Corcoran
Eugene Crumpler
Mark Morris
Elvia Niebla
Norma Whetzel
ANALYSIS & EVALUATION DIV.
Program Integration & Evaluation Branch
Henry Kahn
Matthew Hnatov
Economic Analysis Branch
Act. Chf, D. Nicoll
Robert Esworthy
INDUSTRIAL TECHNOLOGY DIV.
Consumer Commodities Branch
Robert Southworth
Energy & Mining Branch
Chief, William Telliard
MONITORING & DATA SUPPORT DIV.
Water Quality Analysis Branch
Charles Delos

JUNE 10, 1988

ATTACHMENT 2

STATE PROGRAM MANAGEMENT AND PERMITTING REGULATIONS

PROMULGATION SCHEDULE

EPA's current schedule for the sludge management regulations includes the following milestones leading to promulgation:

Rulemaking Package drafted (preamble and regulations)	9/15/88
Steering Committee/Work Group Closure	11/10/88
Initiate Red Border Review	12/30/88
Complete Red Border Review	1/20/89
Initiate OMB Review	1/27/89
Complete OMB Review	2/10/89
FR Notice Signed by AA/OW	3/17/89
FR Notice Signed by Administrator	3/30/89
FR Publication	4/20/89

ATTACHMENT 3

PART 503 TECHNICAL REGULATIONS ROUND 1

PROPOSAL SCHEDULE

EPA's current schedule for Round 1 of the sewage sludge technical regulations includes the following milestones leading to proposal,

Rulemaking Package (Preamble, Regulations, etc.) Drafted	9/16/88
Steering Committee/Work Group Closure	11/4/88
OW Review Completed	12/23/88
Initiate Red Border Review	1/6/89
Complete Red Border Review	1/27/89
Initiate OMB Review	2/6/89
Complete OMB Review	2/21/89
FR Notice Signed by AA/OW	3/24/89
FR Notice Signed by Administrator	4/7/89
FR Publication	4/28/89

ATTACHMENT 5

PART 503 TECHNICAL REGULATIONS ROUND 1

PROMULGATION SCHEDULE

EPA's current schedule for the sewage sludge technical regulations includes the following milestones leading to promulgation of the first round regulation:

Public Comment Period Ends	7/28/89
Receive National Sewage Sludge Survey Contractor's Database	10/1/89
Renotice New Data in *FR*	7/15/90
Public Comment Period Ends	9/15/90
Rulemaking Package (Preamble & Regulation) Revised in Response to Public Comments	12/1/90
Steering Committee/Work Group Closure	3/1/91
OW Review Completed	5/1/91
Initiate Red Border Review	5/15/91
Complete Red Border Review	6/8/91
Initiate OMB Review	6/22/91
Complete OMB Review	7/7/91
FR Notice Signed by AA/OW	8/22/91
FR Notice Signed by Administrator	9/22/91
FR Publication	10/8/91

ATTACHMENT 5

PART 503 TECHNICAL REGULATIONS ROUND 2

To date, EPA has identified no additional toxic pollutants expected to be present in sewage sludge in concentrations which may adversely affect public health or the environmental. To determine if a second round of technical regulations is necessary, the Agency has initiated the National Sewage Sludge Survey. This survey will include pollutant sampling and analysis and a detailed questionnaire.

The Agency anticipates receiving the data from the survey in fall 1989. EPA's current schedule for the sewage sludge survey includes the following milestones:

Initiate Full Scale Field Sampling	8/88
OMB Approval of the Questionnaire	11/88
Initiate Mailing of the Questionnaire	11/88
Complete Coding of Questionnaire Data	5/89
Complete Coding Analytical Data	8/89
Receive Contractor's Database	10/89

Based upon an evaluation of the survey data, the Administrator will determine which pollutants need to be regulated in a second round of regulation.

ATTACHMENT 6

CURRENT SCHEDULE FOR REVISED CRITERIA FOR MUNICIPAL SOLID WASTE LANDFILLS

Milestone	Current Date
Notice of Proposed Rulemaking to OMB	05/04/88 (completed)
Notice of Proposed Rulemaking to Administrator	07/26/88
Notice of Proposed Rulemaking in *Federal Register*	08/08/88
Close of Public Comment Period on NPRM	10/09/88
Draft Final Rule to Workgroup	03/09/89
Workgroup Closure	07/09/89
Final Rule to Assistant Administrator	08/09/89
Final Rule to Red Border	09/09/89
Final Rule to OMB	10/21/89
Final Rule to Administrator	12/05/89
Final Rule in *Federal Register*	12/19/89

Attachment 7

TABLE B.1.3 THEORETICAL SAMPLE SIZES FOR QUESTIONNAIRE SURVEY

FLOW (MGD)	DISPOSAL PRACTICE						ROW TOTAL
	INCINERATION	OCEAN DUMPING	LAND APPLICATION	DISTR. & MARKETING	OTHER + LANDFILL	MONOFILL	
0 - 1	1	1	68	14	72	12	168
1 - 10	25	3	24	21	61	12	146
10 - 100	30	10	12	9	28	8	97
> 100	6	4	2	6	5	0	23
TOTAL	62	18	106	50	166	32	434

TABLE B.1.4 ACTUAL SAMPLE SIZES FOR QUESTIONNAIRE SURVEY

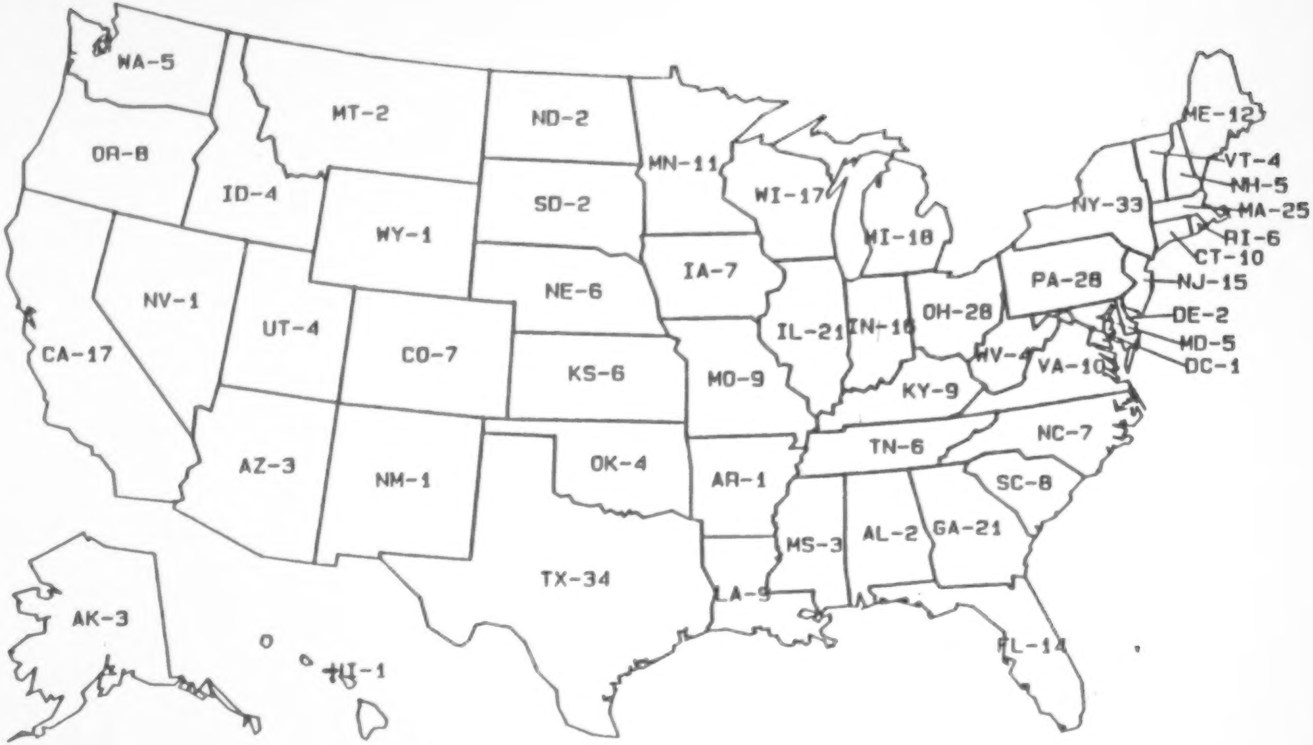
FLOW (MGD)	DISPOSAL PRACTICE						ROW TOTAL
	INCINERATION	OCEAN DUMPING	LAND APPLICATION	DISTR. & MARKETING	OTHER + LANDFILL	MONOFILL	
0 - 1	1	1	75	15	80	13	185
1 - 10	27	3	26	23	67	13	159
10 - 100	33	11	13	10	31	9	107
> 100	7	4	2	8	7	0	28
TOTAL	68	19	116	56	185	35	479

TABLE B.1.5 SAMPLE SIZES FOR ANALYTICAL SURVEY

FLOW (MGD)	ALL DISPOSAL PRACTICE
0 - 1	67
1 - 10	65
10 - 100	56
> 100	20
TOTAL	208

QUESTIONNAIRE SURVEY – DISTRIBUTION OF POTWS SAMPLED

NUMBER OF POTWS BY STATE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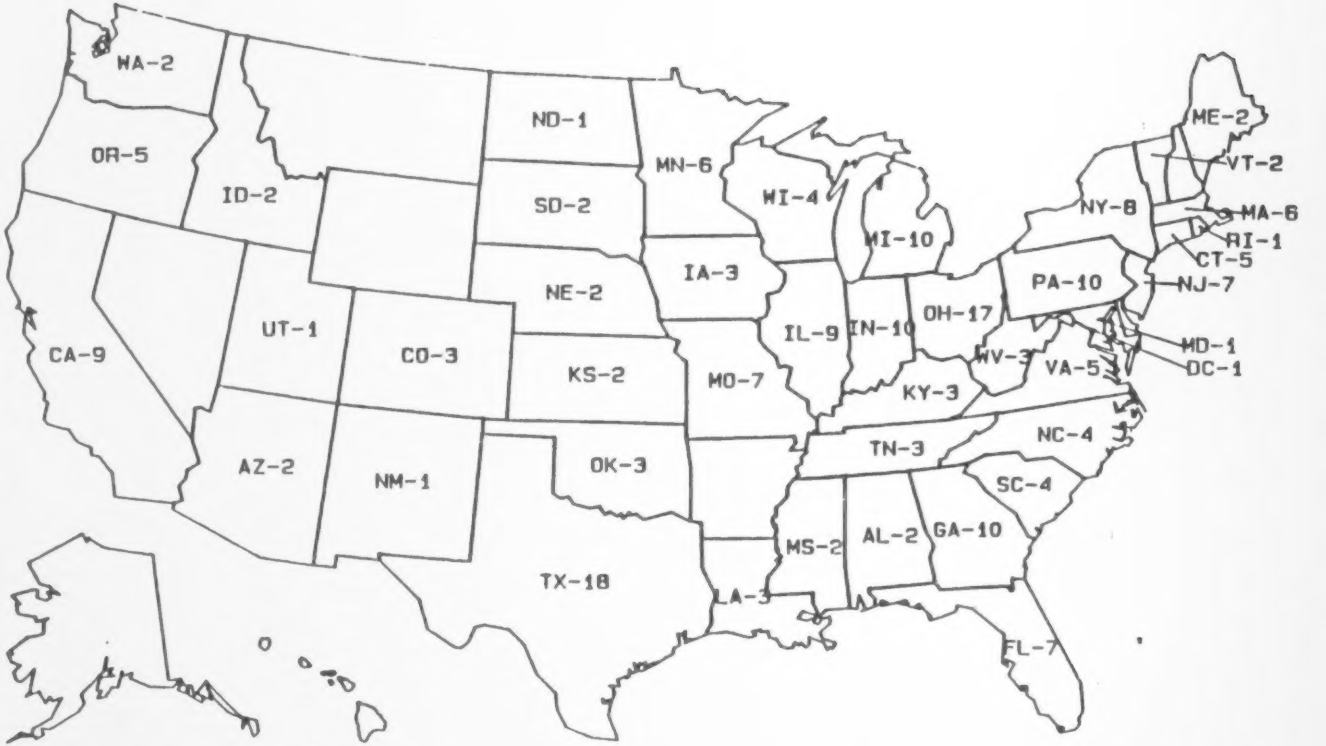
OR-8
CA-17
ID-4
NV-1
MT-2
WY-1
UT-4
AZ-3
CO-7
NM-1
ND-2
SD-2
NE-6
KS-6
OK-4
TX-34
MN-11
IA-7
MO-9
AR-1
LA-9
WI-17
IL-21
MS-3
MI-18
IN-16
KY-9
TN-6
AL-2
OH-28
WV-4
GA-21
FL-14
SC-8
NC-7
VA-10
PA-28
NY-33
ME-12
VT-4
NH-5
MA-25
RI-6
CT-10
NJ-15
DE-2
MD-5
DC-1
AK-3
HI-1

ANALYTICAL SURVEY – DISTRIBUTION OF POTWS SAMPLED

NUMBER OF POTWS BY STATE


WA-2
OR-5
ID-2
CA-9
UT-1
AZ-2
CO-3
NM-1
ND-1
SD-2
NE-2
KS-2
OK-3
TX-18
MN-6
IA-3
MO-7
LA-3
WI-4
IL-9
MI-10
IN-10
OH-17
KY-3
TN-3
MS-2
AL-2
GA-10
FL-7
SC-4
NC-4
VA-5
WV-3
PA-10
NY-8
ME-2
VT-2
MA-6
RI-1
CT-5
NJ-7
MD-1
DC-1

Mr. Davies. Thank you. And Congressman Manton sits on the Merchant Marine and Fisheries Subcommittee, and we look forward to his testimony.

[Mr. Davies' prepared statement follows:]

Davios

TESTIMONY OF
TUDOR DAVIES
DIRECTOR OF THE OFFICE OF MARINE AND ESTUARINE PROTECTION
U.S. ENVIRONMENTAL PROTECTION AGENCY
AND
RICHARD CASPE
DIRECTOR, WATER MANAGEMENT DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION II
BEFORE THE
SUBCOMMITTEE ON WATER RESOURCES
OF THE
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION
U.S. HOUSE OF REPRESENTATIVES

August 2, 1988

Good morning. I am Tudor Davies, Director of the Office of Marine and Estuarine Protection, in the Office of Water at the Environmental Protection Agency (EPA). I am pleased to appear before you today to testify on H.R. 4338, legislation to ban the dumping of sewage sludge in the oceans. With me today is Richard Caspe, Director of the Water Management Division of the Region II Office of the U.S. EPA. Mr. Caspe will speak first on the feasibility and practicability of the December 31, 1992 deadline for the prohibition of dumping of sewage sludge in the oceans, and I will follow with comments on other provisions in H.R. 4338 as requested in your letter of invitation.

Good morning, I am Richard Caspe, Director of the Water Management Division of the Region II office of the U.S. Environmental Protection Agency. Our region includes the States of New York and New Jersey, Puerto Rico and the U.S. Virgin Islands. I am pleased to be here today and I thank the Committee for the opportunity to discuss EPA's perspective on the issue of ocean disposal of municipal sewage sludge.

In addition to addressing the feasibility of the 1992 deadline, my testimony will review briefly the recent history of the disposal of municipal sludge in the ocean in Region 2, including a discussion of the phase-out of the former 12-mile disposal site, the status of current dumping at the 106-mile site and our review of permit applications for that site, our program to monitor the 106-mile site, and the status of the Ocean Dumping Surveillance System.

Status of Sludge Dumping

Sewage sludge has been dumped in the New York Bight since 1924. In recent years, nine dumpers--the City of New York and Westchester and Nassau Counties in New York, and six sewerage authorities in New Jersey--have continued the practice. The volume of material dumped was about 8 million wet tons in 1987.

EPA attempted to halt ocean disposal of sludge by the end of 1981 under the terms of the Marine Protection, Research, and Sanctuaries Act (MPRSA). However, in an action brought by New York City and later duplicated in New Jersey, the Federal Courts ruled that EPA could not halt the dumping without considering alternative disposal methods and their impacts. This decision was made in order to require consideration of the impacts and availability of land-based alternatives in MPRSA permitting decisions, even for materials failing the marine impact criteria of the regulations. Since that decision, the sludge dumpers have been operating under Court Order rather than MPRSA permits.

In July of 1986, EPA notified the nine sludge generators that they would be required to submit complete MPRSA permit applications for use of the 106-Mile Site. We requested that these applications be submitted no later than January of 1987. The existing Court Orders control the disposal operations until such time as EPA has received and acted upon complete permit applications.

We informed the applicants that, under the Act, ocean dumping permits may not be issued unless the applicant can demonstrate that there are no alternative land-based disposal methods available that are technically feasible, economically reasonable and likely to have less adverse impact on the total environment and human health than ocean disposal.

We received applications from the New York sludge generators on January 15, 1987; however the six New Jersey authorities requested an additional six months to submit applications that would include a thorough evaluation of all possible disposal alternatives on an authority-by-authority basis. On August 1 of 1987, the New Jersey Authorities submitted one application on behalf of all six.

In November of 1987, Region 2 completed its review of the permit applications; we found them to be incomplete in their evaluation of alternatives. We sent letters to the applicants that read, in part:

> "Federal regulations require that a permittee continue to research all feasible alternatives to ocean dumping, including practicable improvements in the

> process technology to reduce adverse sludge characteristics and alternative locations or methods for sludge disposal or recycling before a permit can be issued." The applications we had received showed that studies for alternate sludge disposal methods had been suspended in 1981.
>
> Our letter continued:
>
> "Therefore, your application does not contain a current or viable analysis of land-based methods and technologies of sewage sludge disposal as they exist today."

We gave the applicants until January 19 of this year to submit this additional information. The applicants did submit additional information on incineration, landfilling and/or composting on January 19, and the Region is now nearing completion of a review of this information.

Monitoring at the 106-Mile Site

As part of our site management responsibilities, EPA has prepared a monitoring plan for the 106-Mile Site. Its objectives are to assess the actual and potential impacts of sludge disposal on the marine environment at the site, and to assess compliance with permit conditions. Data collected will be used in making decisions regarding continued designation of the site, the status of disposal permits, and the design of future monitoring programs.

Much information on chemical and physical characteristics and baseline conditions at the 106-Mile Site already exists from studies performed during the past decade. Between 1984 and 1986, for example, EPA conducted five baseline studies at the site. These data were used to develop the current monitoring plan and will be used as the baseline against which new results will be compared.

In August of 1987, EPA conducted a survey at the 106-Mile Site to track the dispersion and settling of the sludge plumes. Four ocean dumping events were monitored. Preliminary findings were that the plumes are extensively mixed in the upper 20 meters of the water column while being transported horizontally by strong currents. The plumes were often tracked well outside the designated boundaries of the dump site, for a period of up to eight hours, or ten miles outside of the site's boundaries. Water quality impacts are still being analyzed.

A second plume tracking survey, to enable comparison of seasonal differences in oceanographic conditions, was conducted in March of this year. The results of this survey are not yet available. As part of our monitoring effort, EPA will begin a third survey in September, 1988 that will continue our efforts to ultimately address the far-field fate of sludge dumped at the 106-mile site. This latest survey will include analyses of both impacts within the site and analyses of where the sludge goes upon leaving the site, and the area of the water column and sea floor that may be influenced by sludge particles.

Designation of the 106-mile site expires in March of 1991. Redesignation will depend, in part, on whether there is a continuing need and on the results of this monitoring. The New York Bight Restoration Plan, as mandated in the passage of the United States-Japan Fishery Agreement Approval Act of 1987, will provide EPA, along with other federal and State Agencies, with a workable strategy to address and manage environmental problems in the Bight, including sludge dumping at the 106-mile site. As part of this plan, the New York Bight's Restoration Plan Management Committee will review the monitoring data on a continuing basis and make periodic recommendations to EPA Region II (the dump site management authority).

- EPA Complaints Against Sewage Authorities

On July 14 of this year, EPA issued administrative complaints against all nine of the sewerage authorities in New Jersey and New York that use the 106-mile site for violating sludge disposal conditions at the site. The authorities against which complaints were issued are: New York City, Westchester County, and Nassau County in New York; as well as the Passaic Valley Sewerage Commission, the Bergen County Utilities Authority, the Middlesex County Utilities Authority, the Rahway Valley Sewerage Authority, Joint Meeting of Essex and Union Counties, and the Linden Roselle Sewerage Authority in New Jersey. EPA issued the complaints for violations between January and April of this year, exercising its authority under the 1972 Ocean Dumping Act. The Agency proposed penalties totaling more than $1.25 million.

The authorities had violated a federal court order that allowed them to continue ocean dumping of sludge under old permit conditions while new permit applications were pending. In some cases, the sludge was discharged too quickly, in others, the approved vessel course was not followed during the discharge operation at the 106-mile site. In still others, information critical to EPA's determination of compliance with discharge requirements had not been supplied. The violations were not of the 'short dumping' variety, where sludge is discharged between the shore and the designated dump site. Further, the violations were uncovered by EPA's review of the dumping records that were filed, as required, by the dumpers themselves.

Ocean Dumping Surveillance System

Another aspect of the use of the 106-Mile Site is the development and installation by the Coast Guard of an Ocean Dumping Surveillance System (ODSS). In 1981, EPA stated that all vessels transporting sludge to this site must have the ODSS installed and operating when available. In November, 1987 EPA, working in cooperation with the Coast Guard, notified the dumpers that the ODSS must be installed by May 15, 1988. Vessels not outfitted will not be authorized to transport sludge unless "unforeseen events" arise.

The ODSS devices consist of an onboard computer that communicates with a computer at the Coast Guard station on Governors Island. The onboard computer, assisted by the Loran C navigation system, reveals latitude and longitude, thus tracking the vessel location. Sensors in the hull detect when the dumping operation takes place.

The goal was to outfit 12 of the 21 current sludge vessels by May 15--enough capacity to handle all the sludge for a time.

This was an ambitious timeframe. Due to contractual arrangements, the number of units available to the Coast Guard for installation prior to May 15 was limited.

As of now, 11 vessels have been equipped with an ODSS. A 12th vessel is still in dry dock. The Coast Guard expects to make four additional units available in August.

In summary, EPA opposes the bill because the Agency is moving ahead in a variety of ways in conformance with the current statute. However, as presently drafted, H.R. 4338 would prohibit the dumping of sewage sludge in the ocean by December 31, 1992. In this regard we have met with each of the sludge dumpers to assess what are reasonable achievable schedules for the phase out of ocean dumping. From the information gathered we must conclude that it will not be possible for all ocean disposal by all of the sludge dumpers to cease by the December 31, 1992 proposed deadline. We are concerned that it may prove unwise and infeasible to select, design, site, construct and begin full operation of land-based disposal alternatives in the timeframe allotted. On the other hand, all sludge dumpers have now expressed a willingness to attempt to reach a technically feasible date for an end to ocean dumping. We are currently continuing, on a fast track basis, negotiations towards achieving agreement on end dates and detailed enforceable schedules towards their achievement.

This concludes my remarks. Dr. Davies will now direct his remarks to comments on other implementation problems with H.R.

4338, particularly the problems which would be caused by the redefinition of sewage sludge to include industrial waste and by the prohibition of discharges into marine waters after December 31, 1988, except in compliance with Clean Water Act (CWA) section 403(c) guidelines. I would be happy to answer questions when Dr. Davies has concluded his remarks.

* * *

As presently drafted, the bill's definition of sewage sludge includes not only wastes generated by waste water treatment plants, but also wastes generated by a manufacturing or processing plant. This language raises a number of difficult questions. Because these questions are not addressed in the bill or its legislative history, and because implementation of the ban could well be controversial, the bill's vagueness in this regard could lead to considerable difficulties in implementation and/or litigation over EPA's interpretation. The types of questions raised are set forth below, with the first two being the most important:

o The bill bans ocean dumping of waste generated by wastewater treatment plants and by manufacturing processes. The basic question raised is: What is left that is eligible for consideration for dumping other than dredged material and fish waste? If the intent is to essentially preclude issuance of all MPRSA section 102 permits after 1992 for other than fish waste, the bill needs to be specific as to that intent or there may well be endless fighting as to what is banned versus what is not.

How does the definition affect incineration-at-sea? The bill bans dumping of industrial waste, and the jurisdictional nexus of the MPRSA with incineration-at-sea is that such activity meets the definition of "dumping". If dumping of industrial waste is banned it would seem that incineration-at-sea of material meeting the bill's definition also is banned. Also, H.R. 4338 directs the development of only land-based alternatives, which would also preclude incineration-at-sea as a disposal alternative.

How does the definition affect section 104(i) of the Act, dealing with low-level radioactive waste? While there are no such permit applications pending, nor any such permit applications anticipated, the Act establishes detailed requirements for low-level radioactive waste permits, including a requirement for approval by a joint resolution of Congress. Is the bill's ban on ocean dumping of industrial waste intended to repeal this provision?

Some EPA Regions have classified certain cannery wastes as industrial waste since chemicals are added to what is essentially fish waste as part of the canning or treatment process. Disposal of tuna cannery wastes are being regulated under the MPRSA in American Samoa and Puerto Rico. The effect of the bill could well be to ban such dumping.

Our second major implementation concern involves Section 3 of the bill which bans discharges into marine waters after December 31, 1988 except in compliance with CWA section 403(c) guidelines, and would establish penalties for violations. Section 403(c) of the CWA combined with the NPDES permit scheme under sec. 402 of the CWA provides EPA with adequate authority to protect the marine environment with regard to point source discharges. Section 3 of H.R. 4338 overlaps with these existing statutory authorities and raises the following concerns:

- The penalty provisions in Section 3 are not workable. First, the penalties are based on dry tonnage which does not make sense for substances discharged through pipes. In addition, the bill does not specify how the penalties are to be imposed.
- Because Section 3 does not amend either the CWA or MPRSA serious implementation problems could be created. For example, are the penalty assessment procedures of the MPRSA or the CWA intended to apply, or, are entirely new penalty procedures to be developed?
- The bill prohibits violations of CWA Section 403(c). Note that section 402(k) of the CWA provides that, except for toxic limitations under section 307 of the CWA, compliance with a 402 permit is compliance with the Act. The bill's provision seems to hold the possibility of challenge to dischargers on the grounds they violate CWA section 403(c) even though the discharger meets the terms of its 402

permit. This would seem inconsistent with CWA section 402(k).

Additional problems which we note concerning H.R. 4338 include:

Permit Deadlines:

Section (1)(a)(1) of the bill prohibits dumping, or transporting for the purpose of dumping, sewage sludge from the United States into ocean waters after December 31, 1988 unless a person has obtained from EPA an MPRSA permit. This is an extremely short timeframe for final permits to be issued. What happens if this date is not met, for example, due to public participation processes?

Fee Amounts:

Section (1)(a)(1) fee amounts may be excessive if the goal is simply to eliminate the cost incentives to ocean dump. The maximum fee imposed is $250/dry ton. Tentative estimates indicate that about $120/dry ton would be adequate to eliminate the financial incentive to ocean dump.

Trust Account Disbursement:

Section (1)(a)(3)(B)(i) provides that money in the trust account may only be withdrawn with concurrence of the permittee and EPA. This raises the potential problem of what happens if neither side can agree. There appears to be no provision for breaking a deadlock.

Expenditure of Fees following Account Termination:

Section(1)(a)(3)(C) provides for termination of the trust account and reversion of the account balance to EPA. However, the section of the bill directing EPA how to use money received [section(1)(a)(4)], addresses only fees paid directly to EPA. There does not appear to be any guidance on what to do with money received on the different basis of account termination.

Use of Fees:

Section (1)(a)(4)(A) addresses use of fees received for activities directly associated with issuance of permits. The list of activities is limited in scope. More flexibility would be useful, especially in terms of use for site management and/or permit compliance activities. In this regard, section 3(1) of H.R. 562 seems to contain preferable language.

Waiver of Fees:

Section 1(a)(5)(A) provides the fees may be waived only if a compliance agreement is entered into by December 31, 1988. This does not give much lead time to enter into such agreements, particularly since the bill might not be enacted right away. It would be better to provide a certain number of months from "date of enactment" to give the necessary lead time rather than fixing a date certain.

Penalties:

Section 1(d) of the bill imposes penalties for violations of "this section". This raises the question of whether these penalties are also available for violating permits, compliance agreements, or regulations which have been adopted to implement section 1 of the bill. In this regard, the current language of section 105(a) of the Act might be a better model, since it makes clear its penalties apply not only to violations of the statute, but also to violations of implementing regulations and permits.

This concludes my testimony. Mr. Caspe and I would be pleased to answer any questions that you might have.

TESTIMONY OF HON. THOMAS MANTON, A REPRESENTATIVE IN CONGRESS FROM NEW YORK

Mr. MANTON. Thank you, Mr. Chairman. Thank you for allowing me to testify out of order.

We had ground fog at LaGuardia Airport this morning that delayed my flight for four hours. I appreciate your bearing with me.

I want to commend you for holding today's hearing on H.R. 4338 and thank you for allowing me to testify before the subcommittee. I don't want to take too much time, but I wish to make several points regarding our Nation's ongoing marine pollution problems and my concerns about the legislation which the subcommittee has under consideration.

As the Chairman knows, our Nation's estuarine, near coastal and open ocean waters are severely distressed and continuing to receive substantial quantities of wastes, including raw and partially treated sewage, industrial and agricultural pollutants. The sources of this pollution are many and include direct discharges and nonpoint sources.

This subcommittee, and the full Public Works and Transportation Committee, recognized this ongoing threat to the integrity of our marine waters last year with the passage of the Water Quality Act of 1987. In that important landmark legislation, the Congress took note of the serious pollution threats presented by agricultural and urban runoff, storm drains and combined sewer overflows.

Now, these are the primary sources degrading our marine waters.

With the passage of the Water Quality Act, the Congress sought to establish appropriate regulation and remedial activities for nonpoint sources and storm drains. The 1987 Act also focuses on the importance of developing sludge management practices for the protection of human health and the environment. These measures, along with greater emphasis on industrial pre-treatment requirements, are really a first step toward alleviating our near-coastal pollution problems.

Unfortunately, while we are currently focusing our attention on efforts to end the ocean disposal of sewage sludge, the Congress appears likely to take another step away from the efforts of this committee by the likely approval of appropriations of only $1.8 to $2.1 billion in fiscal year 1989 for the construction grants program.

This figure is higher than that requested by the President, but falls short of the $2.4 billion authorized by the 1987 Water Quality Act. Congress had established this figure as part of an agreed-upon plan to phase out Federal funding for waste water treatment facilities while ensuring continued movement toward our national clean water goals.

This is of particular concern in light of last week's announcement by the United States Environmental Protection Agency which cited dozens of East Coast cities with being in violation of the Clean Water Act. Cities from Boston to Key West have failed to comply with the July 1, 1988, deadline to provide facilities capable of achieving secondary treatment standards for municipal waste water.

As a result, numerous municipalities are discharging into fresh and marine waters millions of gallons of raw sewage or only rudimentarily treated waste water containing high levels of fecal and infectious waste.

Fourteen cities in New Jersey and two sections of New York City are amongst those that have yet to achieve secondary treatment. Clearly, this has and will continue to have a dramatic effect upon the water quality for the region.

The legislation the subcommittee is considering now does not focus on that pressing problem. Rather, the subcommittee is examining another issue: the legal disposal of treated municipal sludge at the 106-mile deep water dump site—the site which this subcommittee legislatively approved in the Water Resources Development Act of 1986.

H.R. 4338 mandates the cessation of the dumping of all sewage sludge into the ocean, regardless of the environmental consequences of the available disposal alternatives.

While I do not necessarily oppose the establishment of such a policy in the long run, I feel it is incumbent upon Congress to develop such a policy in a well-thought out and reasonable manner. We should not allow political concerns to influence our actions to develop a multifaceted approach to addressing our marine pollution problems.

Whether or not the Congress ends up supporting this effort to end the ocean dumping of sewage sludge, it is important to note that this practice is not causing the beach wash-up problems currently being experienced by New York and New Jersey, and in fact all our coastal States.

There is no proof, and little likelihood, the ocean disposal of sludge is adversely affecting Mid-Atlantic fin or shellfish. These claims of significant losses in fisheries harvests and increased incidences of disease are unsubstantiated and refuted by Government experts within the National Marine Fisheries Service.

The tragic loss of hundreds of dolphins over the past year is also unrelated to the ocean disposal of sludge. In fact, a recently completed report entitled, "The State of the Ocean—1987: A Report by the Blue Ribbon Panel on Ocean Incidents—1987," requested by the Governor of New Jersey, concluded the deaths of the bottlenose dolphins could not be attributed to the ocean disposal of sewage sludge and "was not supported by evidence presented to the panel."

The ocean disposal of treated sludge is not the source of hypodermic needles, blood viles or other hospital and potentially infectious wastes washing up on our beaches. These and other "floatables" are undoubtedly the result of illegal dumping activities, combined sewer overflows, and outflows from bays, estuaries, and coastal communities. In fact, according to another study done by the State of New Jersey, 80 to 90 percent of their beach closures last season were attributable to local problems.

I do not believe this legislation is well written. I believe your subcommittee and the full Public Works and Transportation Committee must make much needed improvements if this legislation is to go forward.

Let me offer a few major areas where the legislation must be changed.

First, the deadlines established in the bill are totally unrealistic. New York City and several of the New Jersey authorities have already gone on record saying they will not be able to meet these deadlines and would require up to ten years or more to withdraw from the ocean. In fact, New York City is currently actively negotiating with the U.S. Environmental Protection Agency, Region II, office to establish a workable consent agreement for the cessation of ocean disposal.

At this point, Mr. Chairman, I would request that a letter from the Middlesex County, New Jersey, Utilities Authority be placed in the record. The letter outlines the Authority's difficulties in achieving the proposed deadlines and the adverse economic effects of H.R. 4338. This letter is indicative of the problems all those currently disposing in the ocean will have if the legislation is enacted.

[The letter referred to follows:]

MIDDLESEX COUNTY UTILITIES AUTHORITY
P.O. BOX B-1, SAYREVILLE, NEW JERSEY 08872
201-721-3800

[illegible], CHAIRMAN
SAMUEL CHIARAVALLI, VICE CHAIRMAN
[illegible]
DAVID E. CRABIEL
[illegible]
[illegible]
TED LIGHT
WILLIAM [illegible]
LEO [illegible]
JAMES T. PHILLIPS
THEODORE Y. [illegible]

FREDERICK H. [illegible], EXECUTIVE DIRECTOR
ALEXANDER A. LACH, CHIEF ENGINEER
ROBERT T. BAILEY, COMPTROLLER
JOHN A. [illegible], COUNSEL

June 27, 1988

TO ALL MIDDLESEX COUNTY UTILITIES AUTHORITY PARTICIPANTS:

Gentlemen:

HR 4338 has cleared a committee in the House of Representatives and, if passed, will have a tremendous impact on the Authority and its participants. The purpose of the legislation is to impose a "fee" on all Ocean Dumpers. 85% of the "fee" would be held in a Trust Fund to support land based alternatives to Ocean disposal. The remaining 15% would go to federal agencies to fund research, surveillance and ocean monitoring.

The attached exhibit represents our estimate of the impact this legislation will have on all Authority participants, exclusive of normal budget increases anticipated for the years delineated.

All six New Jersey Authorities which presently utilize ocean disposal recognize the fact that the practice must end. This is in spite of the fact that there is a lack of scientific information proving it to be less harmful to treat sludge on land than in the ocean. We also recognize that it is not possible to plan and construct land based sludge handling facilities within the time frame about to be established by both the State and Federal governments.

The MCUA believes HR 4338 to be both unrealistic and unreasonable. The impact upon you, as a participant, is obvious.

Attached is a listing of elected officials. Please contact them and request a reasonable and rational approach to address our situation. The "fee" to be imposed will create severe hardship most, and, after 1992, possible bankruptcy for many.

MIDDLESEX COUNTY UTILITIES AUTHORITY

TO ALL MCUA PARTICIPANTS:
June 28, 1988
Page 2

I will be pleased to answer any questions you might have regarding this matter.

Very truly yours,

Frederick H. Kurtz
Executive Director

FHK/bpc
Enclosure
cc: MCUA Commissioners
Middlesex County Freeholders

MIDDLESEX COUNTY UTILITIES AUTHORITY

SLUDGE DISPOSAL PENALTY

Note: Penalty figures are in ADDITION to total charges now being paid on 1989 estimates.

PARTICIPANT	JAN 1 TO JUL 31, 1989 @ $100/dry ton	JUL 31 TO DEC 31, 1989 @ $150/dry ton	1989 TOTAL PENALTY	JAN 1 TO JUL 31, 1990 @ $150/dry ton	JUL 31 TO DEC 31, 1990 @ $250/dry ton	1990 TOTAL PENALTY	1991 TOTAL PENALTY @ $250/dry ton	1992 TOTAL PENALTY @ $250/dry ton	1993 AND BEYOND TOTAL PENALTY @ $5,000/DRY TON	1993 AND BEYOND TOTAL PENALTY @ $5,000/DRY TON
BOUND BROOK	$17,132.83	$18,352.75	$35,487.70	$25,690.65	$38,592.92	$56,290.97	$73,073.00	$73,073.00	$291,692.00	$1,468,460.00
EAST BRUNSWICK	$82,626.66	$88,528.55	$171,155.22	$123,939.99	$147,507.60	$271,087.59	$354,114.25	$354,114.25	$1,416,457.00	$7,082,285.00
EDISON	$257,074.67	$276,680.00	$533,754.67	$386,512.00	$460,133.33	$846,645.33	$1,104,320.00	$1,104,320.00	$4,417,280.00	$22,086,400.00
FRANKLIN TOWNSHIP	$104,263.03	$111,711.23	$215,975.00	$156,395.75	$186,105.42	$342,501.17	$446,045.00	$446,045.00	$1,787,380.00	$8,936,900.00
HIGHLAND PARK	$22,720.00	$24,343.50	$47,063.01	$34,800.11	$48,571.56	$74,451.68	$97,371.75	$97,371.75	$389,487.00	$1,947,435.00
METUCHEN	$40,397.30	$51,853.25	$100,250.55	$72,595.95	$86,423.75	$159,019.70	$207,417.00	$207,417.00	$829,668.00	$4,148,340.00
MIDDLESEX	$37,991.70	$40,702.40	$78,697.10	$56,907.63	$67,842.48	$124,830.81	$162,821.75	$162,821.75	$651,287.00	$3,256,435.00
MONROE TOWNSHIP	$11,911.90	$12,762.75	$24,674.65	$17,867.85	$21,271.25	$39,139.10	$51,051.00	$51,051.00	$204,204.00	$1,021,020.00
NEW BRUNSWICK	$126,914.99	$135,979.43	$262,894.30	$190,371.74	$226,633.02	$417,004.76	$543,919.25	$543,919.25	$2,175,677.00	$10,878,385.00
NORTH BRUNSWICK	$75,219.98	$80,591.23	$155,812.65	$112,829.85	$134,321.25	$247,151.10	$322,371.00	$322,371.00	$1,289,484.00	$6,447,420.00
OLD BRIDGE TOWNSHIP	$150,160.68	$160,964.40	$313,135.10	$226,753.01	$269,944.06	$496,697.08	$647,865.75	$647,865.75	$2,591,463.00	$12,957,315.00
PISCATAWAY TOWNSHIP	$131,976.38	$141,300.48	$273,276.86	$197,889.56	$235,582.81	$433,472.38	$565,398.75	$565,398.75	$2,261,595.00	$11,307,975.00
PLAINFIELD JOINT ADM.	$155,000.07	$166,077.34	$321,077.41	$232,500.71	$276,786.56	$509,287.28	$664,287.75	$664,287.75	$2,657,151.00	$13,285,755.00
SAYREVILLE	$109,831.65	$117,675.45	$227,507.10	$164,746.58	$196,126.00	$360,873.45	$470,700.50	$470,700.50	$1,882,810.00	$9,414,090.00
SOUTH AMBOY	$6,930.73	$7,430.06	$14,364.79	$10,402.09	$12,383.44	$22,785.53	$29,720.25	$29,720.25	$118,881.00	$594,405.00
SOUTH BOUND BROOK	$5,331.20	$5,712.00	$11,043.20	$7,996.80	$9,520.00	$17,516.80	$22,848.00	$22,848.00	$91,392.00	$456,960.00
SOUTH BRUNSWICK	$101,973.00	$109,256.96	$211,229.96	$152,959.63	$182,094.79	$335,054.42	$437,027.50	$437,027.50	$1,748,110.00	$8,740,550.00
SOUTH PLAINFIELD	$85,090.93	$91,164.00	$176,259.03	$127,636.03	$151,948.13	$279,584.35	$364,675.50	$364,675.50	$1,458,702.00	$7,293,510.00
SOUTH RIVER	$27,607.01	$29,576.94	$57,183.95	$41,010.51	$49,290.25	$90,300.74	$118,315.75	$118,315.75	$473,263.00	$2,366,315.00
SPOTSWOOD	$12,335.34	$13,215.44	$25,550.78	$18,503.01	$22,027.40	$40,530.41	$52,865.75	$52,865.75	$211,463.00	$1,057,315.00
AMSCO INDUSTRIES	$207,982.92	$222,756.13	$430,656.04	$311,850.30	$371,253.21	$683,109.50	$891,012.50	$891,012.50	$3,564,050.00	$17,820,250.00
HATCO & CO	$54,839.17	$58,756.25	$113,595.42	$82,250.75	$97,927.00	$180,185.03	$235,025.00	$235,025.00	$940,100.00	$4,700,500.00
HERCULES, INC	$102,736.67	$110,075.00	$212,811.67	$154,105.00	$183,458.33	$337,563.33	$440,300.00	$440,300.00	$1,761,200.00	$8,806,000.00
NL INDUSTRIES	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
KIMBERLY CLARK	$520,277.92	$557,444.63	$1,077,718.54	$780,416.00	$929,067.71	$1,709,484.58	$2,229,762.50	$2,229,762.50	$8,919,050.00	$44,595,250.00
SHERWIN-WILLIAMS	$9,507.03	$10,186.01	$19,713.04	$14,275.50	$16,994.69	$31,270.23	$40,787.25	$40,787.25	$163,149.00	$815,745.00
STAUFFER CHEMICAL CO.	$53,152.34	$56,946.94	$110,101.70	$79,728.51	$94,914.90	$174,643.41	$227,795.75	$227,795.75	$911,183.00	$4,555,915.00
ZAGATA FABRICATORS	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
MOBEY INC.	$603.93	$647.06	$1,258.99	$905.89	$1,078.44	$1,984.33	$2,588.25	$2,588.25	$10,353.00	$51,765.00
UNION CARBIDE CORP.	$19,087.50	$20,455.23	$39,542.71	$28,634.38	$34,088.54	$62,722.92	$81,812.50	$81,812.50	$327,250.00	$1,636,250.00
MUNICIPAL TOTAL	$1,572,851.48	$1,684,540.88	$3,256,392.36	$2,358,077.23	$2,807,234.79	$5,165,312.02	$6,737,363.50	$6,737,363.50	$26,949,454.00	$134,747,270.00
INDUSTRIAL TOTAL	$968,119.54	$1,037,270.94	$2,005,390.48	$1,452,179.31	$1,728,784.98	$3,180,964.21	$4,149,083.75	$4,149,083.75	$16,596,335.00	$82,981,675.00
COMBINED TOTAL	$2,540,171.03	$2,721,810.86	$5,261,782.84	$3,810,256.54	$4,536,019.69	$8,346,276.23	$10,886,447.25	$10,886,447.25	$43,545,789.00	$217,728,945.00

Mr. MANTON. Second, the penalties contained in H.R. 4338 are draconian in nature and designed to punish New York City, Nassau and Westchester Counties in New York, and the six New Jersey regional authorities for having disposed of their sludge legally in the ocean for the past seven years. In fact, New York City would be liable for fines of up to $730 million a year under the bill's current provisions. The Passaic Valley Sewage Authority could be penalized over $300 million a year.

To underscore just how outrageous these penalties are, the largest fine the EPA has ever levied against a polluter is $2.9 million under the Clean Water Act. The Marine Protection, Research, and Sanctuaries Act currently provides for a maximum civil penalty of only $50,000 per violation.

Third, the fees provision is cumbersome and does not accurately reflect the true costs involved for the Federal Government in processing applications and monitoring ocean disposal activities. This provision simply does not represent a true user fee.

Fourth, the legislation also does not allow for any provisions for the continued ocean disposal of sewage sludge in the event of an unforeseen emergency.

What will happen if a municipality cannot obtain a permit for the incineration of sludge under the Clean Air Act? What will happen if the only available land-based disposal option would threaten groundwater resources? What will happen if a community is sued and prevented by the courts from proceeding with a particular disposal option?

Mr. Chairman, these are questions that need to be answered before this legislation is enacted into law.

Finally, Mr. Chairman, I would like to comment on the three amendments I was successful in having included in this legislation by the Merchant Marine and Fisheries Committee. I believe it is important that these provisions be retained in any bill this subcommittee reports to the full committee.

First, I believe we would be acting in an extremely hypocritical fashion if we were to mandate the end of ocean dumping of sludge while continuing to allow the opportunity for the ocean disposal of industrial wastes. While I understand there is only one chemical company dumping its wastes in the ocean and pursuing a permit renewal to continue to do so, how can we on the one hand deny this disposal option to municipalities regardless of the environmental consequences while allowing industries to continue this practice? Unless the Congress develops a more realistic approach to sludge disposal, we should not exempt industries from the same requirements.

My amendment in this regard is very straightforward. It merely takes existing language within the Marine Protection, Research, and Sanctuaries Act, concerning industrial waste and includes it under the definition of sewage sludge. It does not affect fish processing wastes or the solid waste represented by finished products.

It should also be made clear that neither my industrial dumpers amendment nor this legislation is intended to preclude alternative disposal options such as incineration at sea, or sub-seabed disposal of sewage sludge.

My second amendment is also very direct and uncomplicated. It merely reaffirms existing law: ocean discharges should be in compliance with established guidelines as mandated by Section 403 of the Clean Water Act. This simply means that those authorities and industries which are directly discharging wastes into our oceans in violation of 403 standards must stop this practice on the same timetable as those municipalities dumping treated municipal sludge 106 miles offshore. Under existing law, they should already be in compliance.

The second part of my amendment would institute new penalties for those in violation of this provision equivalent to that amount we are requiring for the ocean disposal of sewage sludge.

There are over 2,000 direct ocean dischargers in the United States today: 230 municipal dischargers and 1,997 industrial dischargers. And, it is my understanding that the Environmental Protection Agency simply does not know which of these dischargers is in compliance.

The likelihood is that very few, if any, outside of the offshore oil and gas industry, are in compliance, even though they may have national pollutant discharge elimination system permits (NPDES) under Section 402 of the Clean Water Act.

In my mind, this is simply an unacceptable situation.

Either we wish to take the necessary steps today to clean up our marine waters or we do not. My amendment allows the Congress to take a very dramatic first step toward ensuring the continued viability of our coastal waters by putting ocean dischargers on notice we will not continue to allow them to discharge in violation of existing law and regulations.

My third amendment, Mr. Chairman, merely seeks to have the appropriate congressional committees hold hearings and report on the status of the schedule for the cessation of the ocean disposal of sludge. It would require Congress to act in the likely event these affected communities will not be able to meet the established deadlines.

Mr. Chairman, I sympathize with the sponsors of this legislation. They have a problem with their beaches being closed during the vacation season and their constituents are angry. They also care about our oceans and our beachfronts.

We all do. Unfortunately, I believe they have chosen to make the ocean disposal of treated municipal sewage sludge a scapegoat for the much larger and more complex problems we face.

The average citizen does not understand that what is "dumped" in the ocean is both treated and hauled 106 miles offshore. The average citizen also is probably unaware that many municipalities in New Jersey and New York City are discharging untreated and partially treated municipal wastes right beside our beaches.

Mr. MANTON. I believe Congress must set priorities and go after the latter activities first. We live in a world of finite resources and limited funds. The twin problems of inadequately treated wastes and illegal dumping must be solved now if we are to clean up our coastal environment. Unfortunately, the current climate of hysteria and innuendo make the Congress' job even more difficult.

In conclusion, Mr. Chairman, I want to reemphasize the need to proceed in a scientifically sound manner, based on common sense.

The majority of the testimony the Committee on Merchant Marine and Fisheries has received over the past several years and the viewpoints put forward by the Office of Technology Assessment in last year's comprehensive study, "Wastes in Marine Environments", support my position. The ocean disposal of treated sludge is not the source of the problems on our beaches, nor is it the most pressing problem our coastal environment faces.

I do not believe this legislation is timely or represents a reasonable approach to the question of whether to cease the ocean disposal of municipal sewage sludge or how such a policy should be achieved.

Thank you, Mr. Chairman.

Mr. NOWAK. Thank you, Congressman Manton. We have heard, of course, from a congressional panel earlier, including Senator Frank Lautenberg, to the bill that is over in the Senate, which, as you know, has a 1991 cutoff date. And one of the questions that I posed to the panel is trying to see whether that cutoff date makes sense in terms of actually accomplishing. As I think the city's position is, we would like to get out of the ocean, but we need more time to develop some alternative, whether that be incineration, composting and so forth. They don't feel they can make that date.

Have you any information, or was any developed during the Merchant Marine markup, that gives you a reason for this committee to consider expanding that date to a different year?

Mr. MANTON. Yes, Mr. Chairman. Although we don't concede that this is the most pressing problem, there is a sense among the general public and in the Congress, I believe, that we should be out of the ocean. Whether this is the most pressing problem or not, if we accept that argument then we must answer the questions of how can we get out, when can we get out? There have been some suggestions during the Merchant Marine Committee's consideration that there would be a compromise on the dates in the original House bill, which was 1992, where the city would agree, if I understand it correctly, to being half out by 1996 and all out by 1998.

And I think that in listening to the recommendations of the witnesses from EPA today, they tend to agree more or less in their own independent judgment with those dates. And I would suggest that if we are to be out, whether we like it or not, that those would be realistic dates for the Congress to assign for the city as a time table.

Mr. NOWAK. Mr. Molinari made the point today of looking at your fish killer in the present dump in Staten Island and made a point to the advocates of the 1991 date that that may force New York to take the path of least resistance and go to Staten Island for additional landfilling which he believes, I think, is contributing more to the "beach problem" than the sludge is out at 106 Miles.

I wonder if you had any opinion or if you talked to anybody in your city relating to what alternatives realistically they could go to.

Mr. MANTON. I think landfilling alternatives are not realistic, certainly not within the City of New York—we just don't have the space for it. The city is highly built up, and there just are no good suitable locations left within the city. So it would mean if we were to go to landfilling, landfilling in somebody else's back yard, I sense that will not be popular with other areas of the country.

I think really our solution, if it is going to be land-based, would be incineration, and we are currently going through a round of siting problems in connection with incinerators for disposing of garbage and solid waste that has been a very difficult and rocky road. We are trying to site, I think, nine incinerators around the City of New York, and I know our EPA Commissioner will have more on that when he testifies.

The question is: How long will it take to find the sites, to get the necessary approvals? In particular, an approval which would meet with the Clean Air Act where I believe New York now is not in compliance because of the very nature of the city, automobile traffic, major airports, and a number of fossil fuel generating plants that are sited around the city, all contribute to poor air quality.

What would we do now if we had to establish sites for more incinerators? It is a very difficult problem, and I certainly don't believe that it could be made to happen by 1992, in any event, certainly not by the Senate version of 1991. It would be ridiculous to set those dates because we know the fines and the penalties would kick in because it is impossible.

So I think New York is saying if we are to be out of the ocean, the city will try to act in good faith and establish the proper time tables to do it so that we are not subjected to the penalties, and are not likely to come back looking for a new date, and I would tend to agree that the 1996 date for half out and 1998 or 1999 for fully out is reasonable and would suggest that the committee give this serious consideration.

Mr. NOWAK. Thank you.

Let me turn to our minority ranking member, Mr. Stangeland, for his inquiry.

Mr. STANGELAND. Thank you, Mr. Chairman. I have no questions. I just want to comment to you on an excellent statement, and much of what you say I am in agreement with. There is one thing we all have to understand, however. You have set out some priorities that you believe are responsible and that we ought to approach. I tend to agree with you. When people see refuse and garbage and hypodermic needles on the beach, they know we are dumping sludge out in the ocean, they don't separate the two, so we have a public perception. When we have a public perception, we have a political problem, so we respond to the problem in a political fashion, which may not be a scientific and responsible approach to the problem, but nevertheless that is the real world we live in and face. I don't like it, you don't like it.

Mr. MANTON. I think you are right in knowing that the perception is a very emotional one. Right in my own county of Queens, we have beautiful beaches. They are being closed when it is 95 degrees out. People are upset, understandably, and they don't distinguish between sludge and medical waste, so it becomes an emotional and certainly a political problem at that point.

All we are saying is we read the handwriting on the wall, and we will go with the flow, but you have to give us the time to do it realistically, because even New York City has limits, to spend or be fined $730 million a year because we can't meet the schedule is really not a good use of the funds available to the city.

Mr. **Stangeland**. I dare say we have a constituency that says stop polluting the ocean, but when we go to putting it on land, we will have a constituency that says you are going to harm the underground water, harm or degrade the land quality. Then we will burn it and have a constituency who says don't pollute our air. We have a Catch 22, damned if we do and damned if we don't.

Thank you for your testimony.

Mr. **Manton**. Thank you. Thank you, Mr. Chairman.

Mr. **Nowak**. Thank you, Mr. Congressman, and certainly we will try to keep your thoughts in mind as we go through trying to garner a consensus on this problem.

Let me invite to the table the New Jersey officials and Ms. Alexander if she was able to stay.

TESTIMONY OF DONALD DEIESO, ASSISTANT COMMISSIONER, NEW JERSEY, DEPARTMENT OF ENVIRONMENTAL PROTECTION, ACCOMPANIED BY ERIC EVENSON, DEPUTY DIRECTOR, DIVISION OF WATER RESOURCES

Mr. **Deieso**. She was a casualty of the long day. With me is Eric Evenson.

My full testimony for your consideration is entered into the record. I will be mercifully brief and offer an amended oral form.

Let me say first the bill before you today is one of great interest to our State, and that, of course, goes without saying. New Jersey has over 127 miles of coast line, and it is clearly one of our most precious resources. The Jersey shore has an international reputation as a vacation spot, whether it is Atlantic City or Cape May. People travel from throughout the world to enjoy that recreation. Today our coastal tourism industry produces over $7.7 billion in revenue. And that fact last year was largely responsible for making our tourism industry the State's number one money maker for the first time; above the chemical and petrochemical industries, which for years had dominated.

There is also a fact that is often missed and certainly has been missed in this debate today, and that is that New Jersey's commercial fisheries are among the most productive of any in the world. The Ports at Cape May and Point Pleasant are the second largest commercial port of any on the East Coast. One out of every two sea clams in clam chowder consumed in this nation come from Jersey shores. In fact, one in four consumed in the world comes from New Jersey's coast.

The case we believe is clearly made that New Jersey's coastal environment is a national resource and one that needs to be protected and at all reasonable costs. Unfortunately, last summer and this summer have not been an easy time for our coastal waters and our coastal communities. Front page newspaper and magazine headlines have described in detail the beach closings. Medical waste, sludge balls and garbage washing ashore have made us a point of international ridicule. It is with this tragic backdrop we appear before you today. If we fail to gain control of this matter soon, if we fail to gain public confidence in our corrective measures, it is likely that billions of dollars will be lost each season and a wonderful recreational resource lost to many millions of our citizens.

As to the Hughes bill, the bill under consideration today represents the culmination of decades of Federal and State disposal of sludge. I might add an interesting paradox, it was in the late 1960s that then New York Congressman Ottinger coined the phrase "dead sea" to describe the New York Bight. Virtually devoid of marine life, this relatively shallow area became the inspiration for a number of corrective actions taken by this Congress and by the individual States.

Since 1976, over 150 New Jersey communities have stopped disposing of sludge in the communities. These communities now dispose of their sludge with land-based technologies of incineration, composting and land application. Exactly the same technologies used in upstate New York, used in Florida, North Carolina and, for that matter, the rest of the nation. Unfortunately, 950,000 pounds a day of sludge continues to be disposed of in our ocean by our six authorities, and this represents 50 percent of what New Jersey produces in sludge.

As a measure of our resolve in this matter, on July 11, 1988 Governor Kean enacted a State law prohibiting disposal of sludge after 1991. Further, our department has acted with those six authorities to amend their wastewater permits so that they will select a land-based and a site for implementing that land-based solution by April 30, 1989.

Notwithstanding these strong State measures, New Jersey needs the legal tools that H.R. 4338 provides. Specifically and first, to close the legal loopholes that existed in the 1977 amendments to the Marine Protection Research and Sanctuaries Act. These loopholes, as you know, were exploited by New York City and several of our authorities in 1981. Their successful legal action, unchallenged by the Environmental Protection Agency, resulted in an additional seven years of ocean dumping. The language of H.R. 4338 closes these gaps once and for all.

Second, over 60 percent of the sludge disposed of in the ocean comes from New York State. Unfortunately, in contrast to the aggressive measures taken by New Jersey, New York City has opposed any measures to stop ocean dumping. This position is, in our view, regrettable. The direction and mandate of H.R. 4338 makes it clear that the battle is over. Higher disposal costs will not suffice any longerr as the reason for degrading our marine environment.

In closing, while some may argue there is no conclusive evidence demonstrating damage at the 106 mile site, we take another view. The mere possibility that the ocean may be damaged by this practice, coupled with the fact that existing land-based alternatives do exist, should be all the motivation necessary to move us to action. You will hear testimony that suggests eight to 12 years is the lead time necessary for the design and construction of sludge incinerators. This does the engineering profession a gross disservice. We will argue and share with this committee the time line we are considering in New Jersey that will suggest three to four years as a timeframe appropriate for this construction.

Just as the residents of Upstate New York, Minnesota, North Carolina or Florida have been paying $240 per ton to dispose of their sludge on land for the memorable past, we see no equity in the argument that H.R. 4338 will present an economic hardship to New Jersey authorities or New York City. In contrast, the $80 per ton ocean dumping cost has been a discount that these communities have enjoyed at the expense of the coast. It is time to end this anachronistic, primitive practice of sludge dumping. It is a discount you can no longer provide, and a discount we can no longer suffer. We strongly encourage passage of H.R. 4338. Send the clear message to all that solutions that work for the rest of the nation must be applied by those who today would have you believe that they are entitled to this environmental license to destroy.

Mr. NOWAK. Thank you very much.

Do you have a formal statement?

Mr. EVENSON. No, I do not. I would be happy to answer any questions that you may have.

Mr. NOWAK. You brought to our attention earlier the Middlesex County Utilities Authority have sent out, I guess to all the Middlesex County Authority participants, whoever they may be, a schedule of—an analysis really—of the fees and the penalties that may become due under the bill. They state the MCUA believes H.R. 4338 to be both unrealistic and unreasonable. I don't get the sense is against not stopping ocean dumping, but they say it is unreasonable, and the impact upon you as a participant is obvious, and I guess we have—you probably have a copy of this, all of the municipalities which are participants in that area relating the dollars that they have charted out on the bill.

First of all, you are in receipt of a copy of this, or have been?

Mr. DEIESO. Mr. Chairman, we know our authorities and the actions they have been taking.

Mr. NOWAK. Have you had a chance to look at these numbers, and would they be the relative charges under the bill as far as the analysis?

Mr. DEIESO. Mr. Chairman, let me say I have yet to meet a member of the regulated community that welcomes regulation, and in this case the charges that the utility makes are identical to all of those that have been made by the others. Frankly, what it comes to is they have painted a picture, a fiscal picture, that is the most bleak. I suspect in their formula they have taken some up-front financing rather than the 20-year or 25-year bonding debt. They may have even done some other actions to paint a picture that is most bleak.

We have done a similar analysis for each of the utilities, and I can say to you that on average for all six, to impose sludge incineration by that date will mean that the cost to the users, the individual residents who flush their toilets and benefit by these treatment facilities, will rise from $40 to $60 depending on which of the authorities we consider. On an overall average today, a bill of $200 to $300 per household will increase by the $40–$60 amount.

So if we look at the economic impact, we understand it to be in that range. And I don't suggest for a moment that is trivial. But I do say to you the same residents in our State that rank environmental issues as number 1 in the public opinion polls and have for the last eight years, those same residents demanding the ocean be clean are prepared to pay that amount.

And I suggest to you, too, Mr. Chairman, that letter from the authority doesn't reflect any polling or sense of mayors in those towns or individual residents. It is strictly the profit-making management of that organization. And quite properly that is the view they would take.

Mr. NOWAK. The last statement, where they state the fee to be imposed would create a severe hardship and after 1992 possible bankruptcy for many——

Mr. DEIESO. I have been a little confused too, Mr. Chairman, in that line of thought as Middlesex offers it, I suggest the following. The bill, as I read it, says there will be no fee should the authority sign a consent agreement. So the supposition of the claim made in that letter to you by the authority is that, we will not sign a consent agreement, and I might add parenthetically, we will be recalcitrant and not enter into a schedule to meet Federal law. So with that as a presumption, then, of course, the fees trigger in, and they have the effect as the sponsor intended them to.

One way to avoid the fee is to sign a consent decree, comply with Federal law.

Mr. NOWAK. But if they don't, of course, they could be looking at bankruptcy under the present fee schedule. What I am trying to get at, of course, is are we providing an incentive or are we providing something that is not going to be complied with and you are not going to have the good-faith effort to achieve and withdraw from them ocean dumping?

Mr. DEIESO. We believe when we look at the investments and the holdings of these authorities, measured in the hundreds of billions of dollars, it is the ratepayers of the State, not the authority, that is being asked to shoulder these costs. The thought they would be bankrupt is a concept I am having trouble understanding. What it means in its simplest terms is the authority will raise the rates that the individual home owners must pay.

The question of bankruptcy doesn't follow. It might mean that our residents are asked to pay from $200 to $250 to have that sludge incinerated, that is true, but the authority isn't going to lose money, nor is it going to go bankrupt.

Mr. NOWAK. One other question that has come up is the difference between the New Jersey, if you will, and I know you are in New Jersey and you know your system well, and that of New York, but I think generally some believe that we cannot have the withdrawal as quickly because of site problems, because of the air pollution regulations that have been mentioned by Congressman Manton and others, and that somehow we have got to construct something with some relief by the date of withdrawal, or the mandated date to be out, to provide encouragement and give New York City and the other municipalities a valid reason to remove.

I wonder if you have a thought about that, and do you believe there is a siting difference, if you will?

Mr. DEIESO. Mr. Chairman, I will comment on the New Jersey situation, and the question is best addressed by the New York community as to their obstacles. From New Jersey's view, the six authorities each own land on which the sewage treatment plants are presently located. Just as any expansion in that treatment plant, a sludge incinerator constructed on site would be part of the facility.

So the thought that this becomes a siting issue in which there are statutes that require the authority to propose a site and to formally take pubic comment, that doesn't exist today, and it is tantamount to an industrial facility planning an expansion on their own property. They are accountable to the environmental regulator for all the permits.

American Cyanamid or Exxon, planning an expansion of one of their facilities in our State will knock on our door, make permit applications, and those permit applications are judged approved or disapproved on their environmental merit.

In similar fashion, these authorities own the property, they seek in essence to expand their operations, thereby having a sludge incinerator, and there is consequently no siting issue as you would know it.

With respect to air pollution matters, I am afraid this falls into the category of blowing a lot of environmental smoke, no pun intended. What we have in the Clean Air Act and what New Jersey is facing is the need that these facilities be equipped with the best air pollution device money can buy. And that is what we have said to our authorities. The thought that you will be denied construction of this incinerator based on air pollution permits is not the case. What is the case, and what you will face is clearly the requirement to install the best air pollution control money can buy. Secondly, you may have to institute pretreatment programs, programs designed at cleaning your waste water with the resulting effect that the sludge has less metals and less organics of concern. So it is a double-control approach. We are convinced that if the authorities go back to their industrial and commercial contributors, have them institute pretreatment programs, do so aggressively, and that coupled with state-of-the-art air pollution control, will address any air pollution concerns. That, I might add, will work for New York City as well.

Mr. Nowak. Let me turn to Arlan Stangeland for questions he may have.

Mr. Stangeland. I thank you, Mr. Chairman.

I just have a very few questions. Your testimony is very complete and explicit, and also our little discussion the other day, I think, answers a lot of my questions I am not going to go into. However, there are a couple.

One I should have probably asked Senator Pallone—maybe you can advise us as to what the situation is—in his testimony he stated that the New Jersey Department of Environmental Protection, if the department fails to submit land disposal plans and issue land disposal permits by June 30, 1989, the March 17, 1991 deadline will be postponed.

Could you elaborate on that?

Mr. Deieso. I will state for you, Congressman, what is the case. I am not quite sure I understand what the Senator referred to. We have an obligation that we imposed on the six authorities an obligation that by April, 1989 they select a land-based alternative and the site on which they intend to proceed.

Now, failure to do so will leave them vulnerable to all enforcement actions we will take under the State's Water Pollution Control Act. Further, we have the ultimate authority to modify or amend permit conditions, allow them frankly to continue operating or not.

So there is considerable clout in the law, the State law. We expect them to comply. In fact, and I will say this frankly, if they spent half the energy to date—and they have been on record for the last six or eight months now, on our clear signal that we intended them out of the ocean—if they spent as much money dusting off the old incinerator plans that have sat on their shelves since 1979 or 1980 and less on those strong letters that offer a distorted economic picture, perhaps we would have more chance of success.

Mr. STANGELAND. I guess it is a little bit of the argument, which comes first the chicken or the egg, and I guess what they say first is they expect you to tell them what will be required of their land-based plan, and they can write their plan depending on what you require. We have the same problem with the Federal EPA. We have people out there saying we will comply, but we want to know what to comply with. We can write a plan, but if we don't know what we are expected to comply with, there is no way to write the plan.

I think that is—his testimony says if the department fails to act or submit the plan required by June 30, the deadline will be delayed a corresponding time. I should have questioned him on it rather than you probably. I think that is the argument.

Mr. DEIESO. Your point is well taken, and you communicated it very clearly. What is at issue is this, a fear that in April, 1989, in compliance with the requirement, they will submit to us their plans for an incinerator on a specific site. We, in turn, will waffle about what air pollution requirements and what air pollution control devices we will find necessary and require.

We have already met with them, and we made it very clear to them we will require the best air pollution equipment money can buy, and that is a state-of-the-art determination we are about to make, and that state-of-the-art determination will apply to all six of them. They will know precisely the configuration of air pollution hardware they are going to have to build into their designs.

Mr. STANGELAND. I don't completely understand what the requirements would be, and you state the New Jersey authorities have adequate land to build incinerators. But do they have adequate land to build incinerators, build a secondary treatment facility and maybe an expanded pretreatment facility? We are talking about three additions. I don't know what that entails or what that means.

Mr. DEIESO. All of the six authorities that are at issue are all secondary treatment. I might add, one of the points of confusion that existed in several comments make previously was that less than secondary treated waste water is being discharged along our Atlantic Coast. That isn't true. As of Saturday, 6:00 a.m., the last plant came on line. So all of the discharges in the Atlantic Ocean now have secondary treatment.

The pretreatment requirements that we will impose and that they will impose on their industrial users will be installed at the industrial site, so if I have a small operation industrial plant and I contribute to Passaic Valley's waste water, the obligation will be on me, the industry facility owner, to pretreat, clean my waste water before I discharge it to the pipe and before it makes its way to the treatment plant and makes it into the sludge.

As far as the space and real estate requirements are concerned, we speak comfortably when we say our six have enough space, there is enough real estate available to them to construct those sludge incinerators at their waste water treatment plants. The incinerator is incidentally, integral to the treatment plant. It is immediately adjacent to sludge de-watering facilities. Sludge is directly piped from the plant to the incinerator, it is part of the treatment plant. The heat generated from the sludge incinerator is used to operate equipment and to dry sludge within the plant itself. So the thought it is an added appendage that stands alone, is not true, it also helps the process.

Mr. STANGELAND. So that it comes to New Jersey water waste treatment facilities, discharging primary treated effluent into the ocean, according to the Administrator of EPA, is not so, and he didn't know what he was talking about?

Mr. DEIESO. What the Administrator announced was there are several New Jersey water waste plants inland that are discharging less than secondary treated waste water. That is true. But the statement, just for the record and so we are clear, all of the treatment plants discharging to the Atlantic ocean directly in the State of New Jersey are all secondary treatment.

Mr. STANGELAND. Does it matter if they discharge into a river that flows into the ocean?

Mr. DEIESO. In the science of it, it does not. Nature provides some degradation, and I say with a smile your point is well taken. We have as a goal upgrading all of our treatment plants.

Mr. STANGELAND. I don't mean to be unkind—just one last question, and it was brought up by Congressman Molinari, and I think he wants it asked, because he couldn't be here. The Interstate Sanitation Commission was established in 1936 as a watch-dog agency. What has happened to it? Why didn't it meet its mission?

Mr. DEIESO. In our view, the Interstate Sanitation Commission is an anachronism. It served its purpose at one time. It was formed by three States in a compact years ago. And it was established absent an EPA, an EPA that has interstate responsibility. Back then, three States, each with differing views on how to control the environment, came together, contracted, established the Interstate Sanitation Commission and funded this organization.

Since that time, you formed the EPA. The EPA has as one of its prime responsibilities to address and settle interstate pollution matters. So in many ways the Interstate Sanitation Commission is strictly a duplication of EPA. From our view, and the view of New York State, that $350,000 that each of us contributes to the Interstate Sanitation Commission budget could be better used for our own enforcement efforts.

So by and large, our public statement is if the Interstate Sanitation Commission exists, very soon, the next fiscal year, they had better be careful in what it is they intend to do with our monies. They need to show us strong programs. We haven't been satisfied with what they have done in the past, and, frankly, they have managed to, with respect to Congressman Molinari, craft their constituency around the Staten Island residents, and that doesn't do New York State or Connecticut residents any good.

So, understanding very narrow interests, we think the agency, if it exists at all, must come back with a very much refined mission in life.

Mr. STANGELAND. Thank you very much. I have no further questions. Thank you, Mr. Chairman.

Mr. NOWAK. Just one question. If this legislation goes through in some form, and, of course, you have in New Jersey a law on the books, what level of participation, I guess I will ask the State of New York the same question, would you anticipate to aid these, your constituents, as well, that are members of these different agencies?

Mr. DEIESO. We have a bit of a difference in that we speak to you as environmental regulators, as will New York City shortly. The difference is that the State of New Jersey and this department, we don't own or operate waste water treatment plants. One distinction we need to understand is in New York City, much of that responsibility rests with their Commissioner. So when he speaks, he speaks not only as regulator, but also in a sense the regulated.

So to our authorities, we have made it clear at this point there will be no State money. There is no Federal money to which they are entitled for construction of these incinerators. The logical scheme for them to pursue is to go to private financing, seek this financing for a period of 20 or 25 years, pay that financing through the increased rates on those users. In our State, Mr. Chairman, the individual home owner is given a bill for his water and/or wastewater charges. That bill is paid directly to the authority, and the authority then, of course operates itself. That bill would go up as the authority would have to pay the debt on the money they have borrowed for the construction of the sludge incinerator.

In short, it is our opportunity for our residents to put their money where their mouths are. Environmental issues are number one in their opinion polls, and they want sludge out of the ocean now comes the time to pay.

Mr. NOWAK. Thank you very much. We appreciate your presence here and your patience.

[Mr. Deieso's prepared statement follows:]

Statement of

Assistant Commissioner Donald A. Deieso

Environmental Management and Control

Department of Environmental Protection

State of New Jersey

Before

The Honorable Henry J. Nowak, Chairman

Subcommittee on Water Resources

of the

House Committee on Public Works

and Transportation

August 2, 1988

Good morning Mr. Chairman and other distinguished members of this Committee. Thank you for the opportunity to give testimony on this most important topic, elimination of ocean sewage sludge disposal by 1992. I applaud the efforts of the New Jersey Congressional Delegation, especially Congressman Hughes who has sponsored H.R. 4338, and this Committee for working towards these needed changes in the Marine Protection Research and Sanctuaries Act. I would like to give you the details of what this means for New Jersey and our resolve to ensure that the change in sludge management is made.

In New Jersey over 150 small communities have ended ocean disposal since 1976. They utilize the practices of incineration, land application or land disposal. Some have constructed facilities to compost their sludge to utilize its natural value and make it a useful additive to the soil. Land-based sludge management will be the goal by 1992 for the six New Jersey sewerage authorities that utilize the ocean. I am asking you to make this the letter of the law for the nation.

Prior to the recent designation of the 106 mile dumping site, sewage sludge was dumped at a site located approximately 12 miles southeast of the entrance to New York Harbor. First designated as a dump site in 1924, the site was chosen jointly by New York and New Jersey following a settlement by the United States Supreme Court. The settlement itself resulted from a suit filed by New York City against the Passaic Valley Sewerage

Commissioners (PVSC), which operates the largest sewage treatment plant in New Jersey, to stop the discharge of sewage sludge by PVSC directly into Upper New York Bay.

Early on, municipal sludges and some industrial wastes were dumped at the 12 mile site. In 1972, the Federal Marine Protection, Research and Sanctuaries Act became law. Under its authority, other sites east of New Jersey were established for the dumping of dredged material, demolition debris (also known as cellar dirt), acid wastes and derelict vessels. In addition, along the northeast coast, there are the 106 mile site for chemical wastes, just beyond the continental shelf southeast of the entrance to New York Harbor, and the 35 mile sludge site east of the Maryland-Delaware boundary. The New Jersey Department of Environmental Protection suggested that the 106 mile site be used as an alternative site for municipal sludge dumping.

As you will recall, Congress amended the Act in 1977 to ban by 1981 all ocean disposal of sewage sludge which would "unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities." When the United States Environmental Protection Agency attempted to enforce the December 31, 1981 deadline, the nine New York and New Jersey sewage agencies knew that there was insufficient time to phase out of the ocean. New York City and several New Jersey sewerage authorities brought a lawsuit against the United States Environmental Protection Agency.

New York City argued in court that it should be permitted by the United States Environmental Protection Agency to continue ocean disposal of dewage sludge at the near shore 12 mile site. The City raised issues of cost and adverse environmental impacts of the land-based alternatives. However, the major contention in the City's lawsuit was that the United States Environmental Protection Agency had misinterpreted the 1977 amendments to the Act. New York City charged that the 1981 deadline was not applicable to sludge that would not "unreasonable degrade the environment," and therefore the law did not put an absolute end to all sludge dumping.

The court found in favor of the City by ruling that the United States Environmental Protection Agency's "conclusive presumption that materials that fail to satisfy the environmental impact criteria will unreasonably degrade the environment is arbitrary and capricious." The court directed the United States Environmental Protection Agency to evaluate a permit application so as to balance the environmental criteria including the need for ocean disposal and the cost of alternatives. The court ordered the United States Environmental Protection Agency to revise its ocean dumping regulations, allow continued ocean dumping consistent with the City's interim permit, consider the City's petition for continued use of the 12 mile site, and evaluate an application by New York City for a "special" ocean dumping permit.

The State of New Jersey strongly believes that what needs to be done in 1988 it to close the loophole of the 1982 court decision. I urge you to enact legislation that will set a fixed date for the termination of all ocean disposal of sewage sludge. H.R. 4338 is the appropriate way to close this loophole.

Ocean Dumping of Sewage Sludge from New Jersey

Little is known about volumes of ocean dumped wastes before the enactment of the Marine Protection, Research and Sanctuaries Act in 1972. The amount of waste ocean dumped from New Jersey in 1973 was 442,000 pounds per day. The number of ocean dumping municipalities has steadily decreased since then, leaving just six New Jersey sewerage authorities presently ocean dumping. While the number of municipalities ocean dumping has decreased from 40 in 1976 to six today, the volume of sludge dumped has increased to 929,050 pounds per day in 1988.

It is anticipated that 1,429,166 dry pounds of municipal sludge will be produced by the six current ocean dumping treatment plans when upgrades to secondary treatment are completed.

Presently, 12 percent of all municipal sludge in New Jersey is land applied as fertilizer, 19 percent is incinerated, and 19 percent is taken out-of-state. The remaining 50 percent is ocean dumped. The New Jersey Department of Environmental Protection is committed to elimination of all ocean dumped sewage sludge. To this end, the New Jersey Pollutant Discharge Elimination System Permits for tHe six ocean dumpers have been modified to require them to select and site a land-based alternative by April 30, 1989.

In order to put an end to ocean disposal of sludge, Governor Kean called for a change in the Marine Protection, Research and Sanctuaries Act to prohibit the practice. He presented this on November 17th of last year as one of his 14 points to form a comprehensive plan to protect and preserve our shores and ocean.

In New Jersey, the resolve to end ocean dumping of sewage sludge has been set in statute. On July 11, 1988, Governor Kean signed into law A-2840 which will require all New Jersey sewerage authorities to cease the practice of ocean disposal by March 17, 1991. That date is the coincidental with the expiration of the designation of the 106 mile site for sewage sludge disposal.

We have begun to implement this initiative as I have explained. The six New Jersey authorities will have alternatives investigated, plans selected for implementation and sites selected for their plans. All of this planning will be presented to the public through hearings as required in the permit conditions for full comment.

In New Jersey we realize the cost and the concerns that this brings. It is possible that we will be siting six new state-of-the-art incinerators within the next year with the most advanced air quality controls in existence. The capital expenditures for these facilities will range in the hundreds of millions of dollars, possible $500 million. The costs to the average customer of one of these sewerage authorities will increase between $40 and $110 per year. But the practice of ocean disposal has ceased over so much of the nation and in so many communities that New Jersey feels that it must be discontinued for our facilities as well. New Jersey is willing to pay the price.

Our action on this matter is not enough. Sixty percent of the sludge that is ocean dumped under permit comes from New York State facilities and this volume needs to be dealt with as well. H.R. 4338 provides the federal mechanism to end ocean disposal by 1992. It not only includes provisions for municipal sewage sludge, but also manufacturing and processing plant wastes. The chemical industries have demonstrated that it is possible to end disposal of industrial wastes. The number of permitted industrial disposers has shrunk to only one. Hopefully, municipal sludge dumpers will eliminate their reliance on the ocean for disposal as well.

H.R. 4338 sets in place a tough fee schedule that is designed to remove the economic advantage for disposal of municipal sludge. The cost for ocean disposal of sludge is just $80 per dry ton. Contrast that cost to those who utilize land-based means which run from $200 to $240 per dry ton.

And finally, H.R. 4338 sets stiff penalties of between $1000 and $5000 per dry ton of sludge for anyone who should violate its provisions. The State of New Jersey strongly recommends that you pass H.R. 4338 out of Committee.

I call for you to send a message that is clear and unequivocal--put an end to ocean dumping of sludge by 1992. Make it federal law to end this practice and find the proper means for management of this material on land.

Thank you.

Mr. Nowak. Let me now call the New York officials, Mr. Langdon Marsh, Executive Deputy Commissioner, New York State Department of Environmental Conservation; and Mr. Harvey Shultz, Commissioner, New York City Department of Environmental Protection.

Mr. Marsh.

TESTIMONY OF LANGDON MARSH, EXECUTIVE DEPUTY COMMISSIONER, NEW YORK STATE, DEPARTMENT OF ENVIRONMENTAL CONSERVATION AND HARVEY SCHULTZ, COMMISSIONER, NEW YORK CITY, DEPARTMENT OF ENVIRONMENTAL PROTECTION

Mr. Marsh. Thank you very much, Mr. Chairman.

I am glad to be here. I am the Executive Deputy Commissioner of New York State Department of Environmental Conservation. We are not here defending nor will we attempt to defend the notion of dumping sludge in the ocean for the long term. We can get that out of the way right at the start.

We do consider sewage sludge to be a potentially useful resource, and so we support efforts to eliminate ocean disposal of this material as quickly as possible. However, great care must be taken to assure the management alternatives that replace ocean disposal have no greater impact on the environment or on human health than does the current operation. We are dealing here with an operation which is completely legal under existing permits. We are not in a situation where we are branding any discharger, the City of New York or anyone else, as a violator. We are simply trying to discover a solution to a problem.

To that end, we will support all efforts by our local jurisdictions, New York City, Westchester and Nassau, to develop land-based alternatives to sludge dumping. The City of New York, as Commissioner Shultz will tell you in a moment, is about to embark on a major effort to study land-based alternatives, updating the work that was done prior to 1981. This will be done according to EPA requirements under its permit.

The pre-1981 studies recommended a seven-year program of dewatering, composting and application to undeveloped or under-developed park lands and a long-term program consisting of primarily incineration. It is anticipated the current effort will also extend to additional alternatives.

All alternatives, including ocean disposal, require a reduction in the metals concentration of sludge, and we are hopeful the implementation of the industrial pretreatment program by New York City and the other jurisdictions will yield sludges that can be safely applied to land or incinerated.

The issue of metals discharged into the air or landfilled as part of the ash may prove as troublesome as direct land application of sludge. Most of New York City's sludge could not meet the metal concentration standards for composting or land application, especially for copper. However, depending on the end use of the compost or sludge and the level of the metal concentrations in the sludge, some facilities may be granted a variance on sludge quality requirements.

While our policy does call for the elimination of ocean disposal, we do not believe this effort can be accomplished by 1992. Rather, because of the very likely difficulties associated with site selection, State environmental analysis requirements, cumulative air impacts and the exhausting of landfill capacity, a more reasonable schedule would require 50 percent of the sludge to be taken out of the ocean by the mid-1990s, say, 1995, and 100 percent out by a few years later, say 1998.

The air quality issues, as I mentioned before, will greatly complicate this process. In ozone or carbon monoxide non-attainment areas, like New York City, emission offsets may be required. However, such offsets may not exist in New York as the State implementation plan has consumed many of them and still requires greater emission reduction. In an attainment area, attainment requirements must be satisfied.

The city has recently submitted a schedule to us for developing both high and low technology alternatives that conform with our own ideas about a reasonable schedule, and it is the same one I believe Mr. Shultz will discuss. We can't provide a complete assessment of the city's plans at this time, because we need more detailed technical information. But the plan to end all ocean dumping by 1998 is clearly more reasonable than the deadline in H.R. 4338. And that schedule represents a good-faith effort on behalf of New York City.

It must, of course, include a consolidated effort for all of the New York Metropolitan area. I would emphasize New York City will have the full cooperation and assistance from the State in carrying out these aggressive deadlines.

On the other hand, with the magnitude of sludge disposal problems, the 1992 deadline is completely unrealistic for New York City. I want to emphasize this is not as it has been portrayed, a question of cost. It is really a question of the difficulties that we foresee in implementing any of these alternatives. The kind of site selection, design, the concurrence of the community boards and all of the other procedures the City must go through for a project of this magnitude makes it extremely difficult for it to meet even the schedule that it has suggested.

We are also concerned that any attempt to accelerate this schedule too much will mean that other critical work that is needed to protect the near-shore areas of the city may not be accomplished or may be delayed. It is our assessment that at the present time the City of New York is currently working at full capacity to solve its sewage-related problems, which include the completion of the projects needed to bring all 14 municipal waste water plants to full capability, to eliminate untreated discharges that remain and to abate significant water quality stresses due to combined sewer overflows. These may have to be delayed if the Congress demands that sludge must be out of the ocean by 1992.

So it is essential Congress consider that in order to improve the quality and abundance of the by-state ocean marine fisheries, major, major resources should be directed toward protecting the near-shore environment. Abatement of non-point sources of pollution, combined sewer overflows and protection of critical coastal habitats are all urgent and costly needs.

The range of activities that must be performed to protect the quality of the near shore ocean and its recreational uses is very wide indeed.

I am going to skip over most of the remainder of the testimony that you have before you, which describes some of these other urgent needs and how they will be fulfilled, and say in conclusion that we believe that an approach which carefully examines the alternatives and their environmental impacts is responsible and practical action. We can project that landfill capacity will not exist nor will there be incinerators available to handle sewage sludge by the 1992 deadline.

We believe that an approach which eliminates at least half of the sludge dumping by the mid-1990s and the remainder a few years later is reasonable, and the State Department of Environmental Conservation and others can assist New York City in the development of reasonable alternatives within that period of time.

Thank you.

Mr. NOWAK. Yes, Mr. Schultz? Would you like to present your testimony at this time?

Mr. SCHULTZ. Yes, thank you, Congressman Nowak and other members of the committee, indeed, for your patience. And I intend to submit our detailed testimony for the record, and attempt to respond to bring into context our view of the situation, and to offer you on behalf of the Mayor and myself New York City's current understanding with Federal EPA.

I think it is important that we review the history over the past several months of the Mayor and my testimony before other committees of Congress, both in the House and the Senate side.

We do not come here today to recant that testimony. We do not believe that the current legislation is wise for New York City, for the New York metropolitan region, and perhaps for the country as a whole. We believe that until a risk assessment was done of all alternatives for the disposal of sewage sludge was completed, and that people should have the availability of all the mediums, the ocean, the land or the air to dispose of it.

However, we do understand, after a lot of deliberations with each and every committee and their staffs, that that is not going to be the case. That it is the intent of Congress to legislate finally the end of ocean disposal.

Just for the record, and in response to some of the New Jersey Congress people, we have done nothing illegal. Neither do we believe that Federal EPA, to suggest that a Federal court's decision is misinterpretation of Congress' is not, in my opinion, to be real.

What has happened here was that in fact, the old legislation allowed the ocean disposal of sludge under scientific and acceptable circumstances, and EPA worked very hard with us over a three or four-year period under a consent decree by the courts to get out of the 12-mile site into the 106-mile site.

So, to this great hiatus of the City's effort seemingly put to you by other people that we have been recalcitrant or defying and not willing to cooperate with environmental legislation is quite to the contrary. We met that consent decree. Many people felt it was impossible for us to build the barges and to get the sludge to the 106-mile site and comply.

And we did that, and just for the record, we are operating with EPA on several other consent decrees, the North River Water Pollution Control Plant was done. North River was, and many of our other outfalls which were at one time discharging, have been completed under consent decree formats.

We have come here today not to say to you that the Mayor has said to me that we should work with EPA to develop a schedule, and we have been doing that for the last four months. He did come and testify prior that he had no schedule and that was the truth, and over the last months, we have worked hard to figure out the minimum amount of time that would be required to get out of the ocean.

In doing so, we came up with a proposal to take out 50 percent of the sludge from the ocean by 1996, and 100 percent by 1999. That schedule was submitted in detail to Mr. Caspe, who testified previously, and over the last several weeks, he has met with Ed Wagner, who is beside me, and our counsel, and they have extensively reviewed that in great detail, and have shaved some time off.

So, the schedule that now is being offered is that we could be out of the ocean by 1995 with 50 percent and by 1998 with 100 percent. That is a very, very tough schedule.

It has been alluded that our circumstances are different than New Jersey. They are. We are not a land-rich State, we are land-poor. We do not have public holdings which are grandfathered, and do not require reviews and processes in order to build any of the incinerators, the land-based alternatives, the de-watering facilities, any of the things that are needed will take the condemnation powers, not only perhaps of New York City, but of New York State, and as you have heard from the respected Congressman Molinari, the people of Staten Island are tired of their landfill being used.

I cannot tell you that we do not need that landfill for sludge. We are going to have to look at every viable piece of land in New York City, inside and outside of New York City for the possibility of disposing of the sludge, because we produce a large amount of sludge. So, we are saying to EPA that since we have produced a schedule, we are willing to enter into an agreement with them, as Congressman Saxton requested.

He would like to see that in the form of a consent decree. If Congress wants that, so be it. We are willing to enter into a consent decree which reviews this schedule with a special master, as is usually done in these kinds of arrangements, to make sure that we comply.

We believe, therefore, that this bill which is before you should reflect that. That is if you want to end the ocean disposal of sludge by 1992, that is something we have to accept. We ask that if the EPA—and we tell you that that can't happen until, in New York City's case, the schedule I proposed to you, that that be allowed to happen under the construct of this bill, under a consent decree.

That if, in fact, the City does not meet that consent decree, you put the penalties that EPA feels are necessary within that consent decree. We have not been penalized under the other consent decrees. We don't fear the penalties for schedules that we represent we can meet and attain.

So, in completing my testimony, I would just like to say that we are offering the schedule under the terms and conditions that I have set forth. We believe if EPA is willing, that we could do so within a very respectable amount of time, during the next several weeks, that we really feel that the attitude of all that is being expressed here is very, very difficult.

New Yorkers' attitude about incinerators is we don't want any more. They don't even have the five to eight incinerators they will need to do resource recovery. We would need three. They do not want the landfills to exist anymore.

There are—we have an industrial pre-treatment program which everybody says we should have. We are in 80 percent of compliance in the industrial categories under that agreement that we entered in 1986. We are doing the things that we are supposed to be doing.

So, the course between now and whenever is not going to be easy for us. Because what is being said is really true, as characterized by the Congressmen before, that we don't have easy choices to make there. People do not want us in their backyard, they do not want it in the ocean or the air, and we are going to have some very, very difficult decisions to make.

I would just like to say that on the financial aspects of this, that the New York City situation is a little bit different. We are committing to you in our testimony that we are going to spend $1.2 billion on combined sewer overflows in the next 10 years. We are saying to you under this agreement that we will spend up to as much as $500 million to achieve the ending of the ocean disposal of sludge on a capital side, and would have to spend as much as $60 million per year on an annual basis, which is an increase from 18 million which we are now paying to pay for all of this.

Our water authority, our water board, basically raises money through the bond markets and sets rates and collects the money from the property owners, which is dedicated revenue for this. We also represent the water system for the City of New York.

So, if the Congress is going to say to us, we want you to filter our water supply, that has to come out of that same base. If we and the Congress and other believe that New York City has to increase its water supply for itself and for its entire region we have to fund that out of our water authority. We believe that that can be done.

But that means that within the next several years, we will have to begin to fund something between an $8 and $12 billion program. For New York City to meet both its clean water and dirty water pollution control needs in to meet what the people, whether it is perceived or whether it is needed—want from us.

And we believe that New York City's water rates and sewer rates are too low. The people don't like to hear that from me, nor from the Mayor. We have increased the rates by over 30 percent in the last two years on an annual basis, and we intend, based upon rate studies that we do on the programming of all of our facilities, to continue to do so.

We believe we have the bonding capacity and that the citizens can afford it. But I will not echo the New Jersey officials to say that should be and it will not be difficult; that the total political decision here, both on the site selection and on the rate paying abilities of people are going to bring us back to you, in the future.

I will close and attempt to answer any of the questions you might ask of Ed Wagner and me.

Mr. **Nowak**. Thank you very much, both of you, for your testimony. Let me just start in on this timetable that has been one of the differences, in fact, it is the difference in the Senate initiative we have outstanding in the House bill.

The difference, I think, is going to be critical, whether this is something that can be adhered to, a schedule that is impossible I guess is not worth much if neither or one of the communities won't adopt it in the views of the people who want to end sludge dumping, will be lost and perhaps end up in another court action.

So we want to get something I would think that would incorporate some of the best views of the people who are going to be responsible for the program, and yet have as tight a timetable as we possibly can.

The view is, as I say, it is between the bills and the testimony that we have received from the New York City officials, are very wide. I am wondering if there could not be a consolidation of some of the steps, some of the siting requirements that would bring these dates closer together? The question of differences between New Jersey public officials and their "private agencies" as was determined, seemed to be vastly different from what we are operating with, and especially New York City and New York State area.

And I am wondering if—I guess I will ask the question of the State first—if there is anything further that you can see, what kind of participation would you envision the State Department having overall in trying to move this program forward?

Mr. **Marsh**. Let me say first on the question of the timetable generally, how that might be squeezed. I would say at the outset, I have been dealing with New York City capital projects in one form or another for the last 15 or so years, and I recognize how difficult a process that is with site selection, all of the local reviews, the environmental reviews that both the City and the State undertake, and the enormous problem of just coordinating among a number of different agencies.

So, I have some considerable sympathy for the City's time schedule, although as I said in my testimony, we have not reviewed that with any particularity. The State is prepared to assist the City in a number of different ways, mostly with the exploration of alternatives, some of which will undoubtedly include looking at out-of-city sites for one or another activity, whether it is land-spreading or reclamation of old mining sites, or a possible location for other kinds of facilities, composting, what have you.

That is going to be a very difficult process, as you can imagine. Just the politics of upstate communities giving up some of their water so that the City of New York's residents can drink has been a very controversial project.

And I expect that anything to do with waste being exported from the City is going to be viewed as a very difficult thing to do. But nonetheless, I think we recognize as a State that the City has very limited space options for some of the activities that are required for land-based alternatives.

And I think it is in line with State policy to assist them, in view of the fact that we would not regard incineration as the most desirable alternative. It can be done perhaps, but we would like to have, to see the City explore other land-based alternatives that puts the sludge to some beneficial use, if that is possible.

So, we will assist them in that regard. We will assist them in the process, to put as much speed in that process as possible.

Mr. SCHULTZ. May I?

Mr. NOWAK. Yes, Mr. Schultz.

Mr. SCHULTZ. I want to make it clear that we are willing to get out of the ocean as quickly as is possible. We have shaved a year and a half off of our original schedule after intensive review by Rich Caspe and his staff. We are willing to subject this to New York State review, to the review of experts in the Public Works Committee or to any outside experts about the reasonableness of the schedule from a governmental sense, an engineering sense or a construction sense.

And if, in fact, additional time could be shaved from our schedule, we are willing to do that. If we can't figure that out now during the process of implementing, if we can figure out how to cut down time from our schedule, we will, but this, at this point, is a recommended schedule which we believe is the earliest we possibly could do this.

But we will subject this to the most vigorous outside or inside evaluation that could be made possible.

Mr. NOWAK. The siting problem has been mentioned time and time again. It is difficult to get a site, I guess, and along with that, if you are land "poor," you are going to have to use your condemnation powers, I would assume, for any site.

Mr. SCHULTZ. Correct.

Mr. NOWAK. And I would envision in any area of population size, you will have a tremendous stress and an awful lot of court action based upon those selections, and I really don't see even in a timetable that you set forth how you will achieve that if you don't have, you know, some site that is disassociated as far as it possibly can from people.

Mr. SCHULTZ. The schedule I submitted to you in our testimony is just a schedule. We are working on a detailed agreement which would be in the form of a consent decree with Federal EPA, and have been doing that for the past several weeks. That agreement holds in it language on one side which says that if the City of New York doesn't do the things it is supposed to do, it should be held in violation.

On the other hand, it would say that if someone went into court and the court delayed us, and the responsibility for the delay did not ultimately be determined against New York City, that that time and the schedule would have to slip.

So, this is the schedule which is represented to you, which is truly litigation-free, which assumes a permitting process by our regulator, New York State, which is extraordinarily tough, which is better than the experience my sister agency, the Department of Sanitation, has had with resource recovery, where it has taken 3 years in the permitting process.

We believe that we can learn from those experiences and the litigation, and try to tailor our work in a way to avoid a lot of this. But I cannot represent to you that any taxpayer or any constituent group might come in and litigate and delay us six or eight months a year. Sometimes we get enjoined from proceeding, and that should not be, in our opinion, held against us. That is the nature of the agreement that we are working out with EPA with—as in other agreements where a special master who becomes an expert on what has in fact taken place and should take place, makes the determination of when the schedule should be expanded or when the City of New York should be penalized.

Mr. NOWAK. Mr. Marsh, has the State participated? We mentioned the alternatives and everybody looks at alternatives now, incineration and where we have in New York State developed any alternatives?

Mr. MARSH. Only 42 percent of the State sludge is now disposed of in the ocean, that consists of the three entities that we have been talking about. The rest is either——

Mr. NOWAK. The total New York sludge produced?

Mr. MARSH. Yes, Westchester, Nassau and New York City. The rest of the counties or municipalities have either gone to incineration of their sludge or to some form of land disposal, land spreading or landfilling.

Mr. NOWAK. Are there any other alternatives that you are looking at in how much is the State involved in reviewing for a municipality or perhaps doesn't have the manpower, the expertise or the dollars to dedicate to these alternatives? Doing for them?

Mr. MARSH. Well, we have funded a number of experimental systems which are now really no longer experimental. They are pretty workable, such as composting. Composting has been tried now in a couple of New York communities with sufficient success, so I think it is a reasonably proven technology.

However, it is, as presently practiced, one that you would not want to do in close proximity to residences, because the odor problem has not been completely solved, which does present some significant problems in terms of composting in New York City.

The City would have to provide some kind of odor control which has not been required up to this point. The assistance that we have been given has been largely under the construction grants program, since the sludge de-watering facilities in Nassau County and some other communities, composting and some of the experimental systems have been funded either under straight construction grants or the innovative technology portion of the program.

Now, that, of course, is finished as a potential source of funding, so anything that is done now must be done either under straight local financing or through the State revolving fund.

Mr. NOWAK. Either of you might have knowledge about this. The amount of—the problem in harbors and beaches being created by the sewer overflow and perhaps the urban runoff along with your untreated waste, if you will, that gets into the harbor area, against the problem that is created with the sludge being taken out to 106 miles.

Would you give that a percentage?

Mr. SCHULTZ. Sure. The sludge contributes zero to beach pollution in New York City, New Jersey, Long Island, in our opinion. Sludge is a liquid matter, 97 percent liquid, 3 percent solid and it is dispersed on, as regulated by EPA, in the ocean, anything that comes through our water pollution control plants which are 14 water pollution control plants which handle about one billion, seven hundred million gallons a day is screened and processed, so all floatables, plastic or otherwise are taken out and disposed—in bins, before the sewage is treated and the effluent is primarily and secondarily treated and then is disposed back into the waterway.

The issue of combined sewer overflows is currently a program which the city is in fact in the negotiation stage with several communities and in the study stage in other parts of our harbor. We are suggesting in some areas of New York City, building huge underground storm water overflow tanks which hold storm water until the storm subsides and the water pollution plant can handle the flow.

That is the basic premise of our $1.2 billion program which also includes an outfall by outfall evaluation, looking at what comes out in a combined sewer overflow situation and looking at the possibility for screening that outfall, for building a well that can hold it until we can get it back to the plant through a pumping mechanism.

So we are looking at a comprehensive system and we are about two-thirds finished with understanding what we have to do and in modeling the particular waterways to understand the pollution loading problem. Now there has been a lot of discussion about what is the day-to-day problem that has been happening in washup this summer in New York City and we basically agree with Commissioner Jorling from New York State, who has said that at this point we can't trace to understand the medical waste problem on our beaches.

We believe a lot of it has to do with a legal—with illegal dumping. We believe some of it has to be contributed to the marine transfer station. We would have to suggest that a possibility is that some of it could come out of combined sewer overflow, but we have no evidence at this point. We are not able to quantify it and that is not because we are sticking our heads in and don't want to look at it.

It is truly a situation which has mystified a lot of us and we are trying to figure that out. The other thing I would say to you is it is hard for people to believe, but the water quality in New York City's harbor in the form of bacterial levels and dissolved oxygen has improved every year, including this year. During the last three years we have stopped discharging the equivalent of 300 million gallons a day of raw discharge that was once going into the harbor and so we have a chart which we will be circulating shortly which shows how the raw discharge has decreased in New York City and how the water quality has improved.

The water quality, for your information, is not monitored by us particularly, but it is monitored by the New York City Department of Health, which sends out boats and takes samples on a daily basis to be able to record and monitor this over a long period of time.

We in fact allowed swimming to take place in some beaches in New York City this year for the first time in 15 years, okay, because the water quality is improved. The water quality has little to do with what is really coming up on the beaches. The beaches have to do, in our opinion, as the mayor testified before and as I will testify again, as to New Jersey's and New York's and Long Island's handling of wet weather flow which is the combined sewer overflow.

Mr. **Nowak**. Well, let me turn to Mr. Stangeland.

Mr. **Stangeland**. Thank you, Mr. Chairman, I just have some very brief ones. During the past ten years, how much, approximately how much has New York City spent on trying to find or locate various alternatives to ocean dumping?

Mr. **Schultz**. In 1979 we funded a study for about $5 million, which was completed and in fact has been submitted to EPA as part of our application to be allowed to dump at the 106-mile site and they are currently reviewing that study.

That study did not progress much past 1982 and after 1983 in terms of its finding because of what I said to you before which was that a decision was made by Federal EPA and New York City and by the federal courts that the law permitted us to go to 106 miles. And it took the full resources of Ed Wagner's operation, which he now heads, but formally was headed by someone else, to build the barges and they negotiate the marine agreements, got the towing companies lined up, do the bidding on those, the consultant selection. And we spent fully four or five years under a consent order meeting the ocean disposal of sludge.

We believe the McGee study up to the point of 1982 represented a full evaluation of land-based alternatives. At this point, we have said to the other committees of Congress and repeat to you today, that we believe that has to be upgraded. And that is why we started. When we became aware, we were sort of surprised, and it may surprise you that we were surprised.

But we were surprised when the issue of ending 106 miles came up during this session of Congress, but as soon as it did and people said to us, "We want you to tell us what a schedule is," we began a consultant selection process to update the study.

We have budgeted another $5 billion to upgrade the work and we have committed to EPA as part of this detailed schedule that we will complete the consultant selection and the work within a two and a half year period of time. That will be to identify the sites, do the reviews and things that are necessary before design and implementation.

Mr. **Stangeland**. You heard New Jersey give us the estimates of the increased cost, over and above ocean dumping. Do you have any idea what kind of costs you are looking at in New York City at this point in time once you get out of ocean dumping?

Mr. **Schultz**. Yes, ocean dumping, it costs the city about $28 million in capital investment for the barges, and it has cost us about $18 million a year for the operating of our facilities.

Given our current estimates, if we were to go to incineration, that would then cost us $500 million in new capital investment and an operating budget of some $60 million.

Mr. **Stangeland**. Can you extrapolate me, the user?

Mr. **Schultz**. Based upon my experience, I would suggest to you, as commissioner, that every $30 million of real costs on an annual basis is the equivalent of a 1 percent rate raise. And I would just like the ability to go back and refine that and submit it to you formally tomorrow.

But that is about it, $30 million for 1 percent of real dollar expenditure in any year. And so if under the numbers that we are talking about for our total water authority, which means clean water and dirty water over the next 10- or 15-year period, that number gets into the five- or six-million-dollar range.

You divided $30 million into that under current terms and you get some understanding that the City of New York's property owners are going to face real strong rate increases during that period.

Mr. STANGELAND. Are you using any land application techniques for sludge disposal?

Mr. SCHULTZ. Currently we are not.

Mr. NOWAK. Why not?

Mr. SCHULTZ. We really, threw our hearts, souls, bodies, into being able to dispose of the 106 mile site. We have—it was before the commissioner. The decision was made, I believe, after reviewing the record that it was a prudent decision to do that and every source was us getting out of the 12-mile site to the 106-mile site and we did so about nine months ago.

And I think it was an accomplishment. It is one that people do not like as much as we would like them to like it, but it is one which we really feel, when you reveal it, would be an accomplishment in a real sense.

Mr. STANGELAND. What are the relevant characteristics of the sludge coming from NYC, Westchester and Nassau County treatment plants? Do these plants have approved pre-treatment programs, and how effective are these programs currently in removing harmful constituents?

Mr. SCHULTZ. We do have a program for New York City. We have sludge.

I think the way I would respond to your question is we do have a pre-treatment program and we believe we are in 90 percent compliance for industrial pre-treatment. I think he could characterize this better. I believe, believe it or not, we think our sludge is better, but I would like Ed to do that in technical terms.

Mr. WAGNER. The characteristics on the New York side is probably equal to the average sludge that one would find in a large urban city throughout the United States. It is no worse. It is no better, which means that there are some limitations in terms of alternatives.

They are some special technologies that might have to be used when disposing of sludge, specifically if you were going to incinerate it, but the quality of sludge does not present insurmountable problems when one seeks to find a land-based alternative.

Mr. STANGELAND. They are certainly some limitations in disposing of this sludge on land as a fertilizer. It was in a research hearing that we heard, I believe, I believe it is Maine has banned that use because Maine is a heavy state in the production of potatoes and that is an absolute no no as far as using a fertilizer for anything that produces its product underground.

Over ground production, wheat, corn, probably not quite as bad. And so there is certainly some limitations there, and I am wondering when we hear the fertilizer application, how much, what kind of a process this sludge has to go through before that fertilizer is suitable to be used as fertilizer taking into account what that land may be used for and then also what kind of concentrations do you get after prolonged use of that sludge as a fertilizer of whatever metals and contaminants may somehow remain to increase over a period of years?

Mr. MARSH. The state has adopted over the last few years, a sludge management regime and we have recently proposed some regulations to modify that further. To differentiate between the different types of land application, depending on the heavy metal content of the sludge and there are certain loading requirements on agricultural land beyond which we will not allow further sludge spreading to occur.

We felt we have a regime to control the total amount of metals that can be applied to agricultural soils before a level of concern is reached. And any sludge that we presently allow to be land spread or any of the future sludges will have to satisfy that regime.

We do, however, even for those sludges that may not meet those requirements or in cases where the land becomes saturated sufficiently, and some other location has to be found, we do believe there are other forms of land application not on agricultural but on forest land or in reclamation projects where a great deal of sludge can be properly and beneficially reused.

And in the case of the city sludges, for example, there is a problem which we will, I guess we have some level of dispute with the city about, but the fact that the copper from the pipes in the city will continue to be lodged in the sludge even after full pre-treatment program is fully implemented may cause some concern for agricultural purposes, but may not for other beneficial uses.

Mr. SCHULTZ. I was just going to say, that we believe that your industrial pre-treatment program, when the full effects of it are on board, will eliminate heavy metal concerns with the exception of copper. We are having the discussions with New York State as well as Federal EPA. The understanding you should have is that if we do have an industrial pre-treatment problem, they are, and we still have a copper problem, that could come from the copper in our buildings where fresh water comes through and like all New Yorkers, our water is aggressive and it attacks the copper and we get it into our plants.

So we will have to find ways to dealing with that. They will add additional costs and will require additional study for the proper way to do that because it is like adding fluoride to water, that would create kind of public controversy. What are you doing to the water in order to control the end product, which you are disposing and what are the tradeoffs there?

We don't think there are any pure, clean, totally clean solutions here. We think there will have to be tradeoffs.

Mr. STANGELAND. I have one last comment, Mr. Chairman, and this panel may want to comment. I read recently over the next number of years, a tremendous increase in solid waste will be generated on the Eastern Seaboard, because of growth and population. And it follows then that if solid waste is going to increase dramatically because of the increased population, then waste water treatment problems and the disposal of sludge will increase as well and is New York looking, you know, and projecting ahead, too?

What are you going to do with this garbage and sludge when you have the problems you have now?

Mr. MARSH. We have adopted a plan in the State of New York and recently some state-wide legislation that is meant to address that problem. We understand that you will be revisiting that problem next year in the reauthorization of the Resource Conservation Recovery Act. It is our expectation that unless something is done, there will be a significant increase in the amount of garbage that is disposed of and we therefore recommended that probably the most aggressive recycling program of any state in the country to try to knock down the amount of waste that has to be disposed of by up to 40 percent, maybe another 10 percent by some waste reduction policies.

So we are trying to get the total waste stream in New York down by 50 percent over the next 10 years or so. A very ambitious schedule, but we recognize that under any, even the brightest and most optimistic circumstances, there will continue to be a need for places to put certain kinds of materials that can't be recycled or incinerated or the residues of incineration, such as ash, and that a certain amount of landfilling and other disposal will be necessary, well into the next century.

So sludge is certainly going to be one of those materials that will require to be addressed through some land disposal technique over the next quarter of a century or more.

Mr. SCHULTZ. New York projects 10 percent increase that the amount of sludge it produces and as North River goes and Redhook goes from primary to secondary treatment in the next year, we will be producing new sludge.

The thing I think, I hesitate to say it, but the thing that would be most important both to the water operations in New York City and to the Sanitation Department would be limits, elimination of plastics. That is the major problem that we as a water pollution control agency have in the combined sewer overflows. The plastics have stayed out there. They do not degrade, they do not disappear, and the increase in plastic use just increases that problem significantly.

Of course, it leads to how do you dispose of it on the landfills?

Mr. STANGELAND. Thank you. I have no further questions.

[Mr. Marsh's prepared statement follows:]

TESTIMONY OF LANGDON MARSH
DEPUTY COMMISSIONER NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
BEFORE
THE HOUSE SUBCOMMITTEE ON
WATER RESOURCES

AUGUST 2, 1988

GOOD MORNING. I AM LANGDON MARSH, AND I AM THE EXECUTIVE DEPUTY COMMISSIONER OF THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION.

WE CONSIDER SEWAGE SLUDGE TO BE A POTENTIALLY USEFUL RESOURCE, AND AS SUCH, WE SUPPORT EFFORTS TO ELIMINATE THE OCEAN DISPOSAL OF THIS MATERIAL AS QUICKLY AS POSSIBLE. HOWEVER, GREAT CARE MUST BE TAKEN TO ENSURE THAT THE MANAGEMENT ALTERNATIVE OR ALTERNATIVES THAT REPLACE OCEAN DISPOSAL HAVE NO GREATER IMPACT ON THE ENVIRONMENT OR ON HUMAN HEALTH THAN DOES THE CURRENT OPERATION.

TO THAT END, WE WILL SUPPORT ALL EFFORTS BY OUR LOCAL JURISDICTIONS TO DEVELOP LAND BASED ALTERNATIVES. THE CITY OF NEW YORK IS ABOUT TO EMBARK ON A MAJOR STUDY OF LAND BASED ALTERNATIVES WHICH WILL, NO DOUBT, UPDATE THE WORK THAT WAS DONE PRIOR TO 1981. THIS STUDY WILL BE CONDUCTED, PURSUANT TO EPA REQUIREMENT, AS SET FORTH IN THE OCEAN DISPOSAL PERMITS. THE PRE-1981 STUDIES RECOMMENDED A SEVEN YEAR PROGRAM OF DEWATERING, COMPOSTING AND APPLICATION TO UNDEVELOPED OR UNDERDEVELOPED PARKLANDS, AND A LONG TERM PROGRAM CONSISTING PRIMARILY OF

INCINERATION. IT IS ANTICIPATED, HOWEVER, THAT THE CURRENT EFFORT WILL EXAMINE ADDITIONAL ALTERNATIVES AND FORMS OF TECHNOLOGY.

ALL ALTERNATIVES, INCLUDING OCEAN DISPOSAL REQUIRE A REDUCTION IN THE METALS CONCENTRATION OF SLUDGE AND WE ARE HOPEFUL THAT THE IMPLEMENTATION OF THE INDUSTRIAL PRETREATMENT PROGRAM WILL YIELD SLUDGES THAT CAN BE SAFELY APPLIED TO LAND OR INCINERATED. INDEED, THE ISSUE OF METALS DISCHARGED INTO THE AIR OR LANDFILLED AS PART OF THE ASH MAY BE AS TROUBLESOME AS DIRECT LAND APPLICATION OF SLUDGE. MOST OF NEW YORK CITY'S SLUDGE COULD NOT MEET THE METAL CONCENTRATION STANDARDS FOR COMPOSTING OR LAND APPLICATION, ESPECIALLY FOR COPPER. HOWEVER, DEPENDING ON THE END USE OF THE SLUDGE OR COMPOST PRODUCT AND THE LEVEL OF THE METAL CONCENTRATIONS IN THE SLUDGE, SOME FACILITIES MAY BE GRANTED A VARIANCE ON SLUDGE QUALITY REQUIREMENTS.

WHILE OUR POLICY DOES CALL FOR THE ELIMINATION OF OCEAN DISPOSAL, WE DO NOT BELIEVE THAT THIS EFFORT CAN BE ACCOMPLISHED BY 1992. RATHER, BECAUSE OF VERY LIKELY DIFFICULTIES ASSOCIATED WITH SITE SELECTION, STATE ENVIRONMENTAL ANALYSIS REQUIREMENTS, CUMULATIVE AIR IMPACTS AND THE EXHAUSTING OF LANDFILL CAPACITY, A MORE REASONABLE SCHEDULE WOULD REQUIRE 50 PERCENT OF THE SLUDGE OUT OF THE OCEAN BY 1995, AND 100% OUT BY 1998. IN FACT, THE AIR QUALITY ISSUES WILL GREATLY COMPLICATE THE SITING PROCESS. IN OZONE OR CARBON MONOXIDE NONATTAINMENT AREAS LIKE NEW YORK CITY, EMISSION OFFSETS MAY BE REQUIRED. HOWEVER, SUCH OFFSETS MAY NOT EXIST IN NEW YORK AS THE STATE IMPLEMENTATION PLAN HAS CONSUMED

MANY OF THE OFFSETS AND STILL REQUIRES GREATER EMISSION REDUCTION. IN ATTAINMENT AREAS, PREVENTION OF SIGNIFICANT DETERIORATION (PSD) REQUIREMENTS MUST BE SATISFIED. THE CITY OF NEW YORK HAS RECENTLY SUBMITTED A SCHEDULE TO US FOR DEVELOPING BOTH LOW AND HIGH TECHNOLOGY ALTERNATIVES THAT CONFORMS WITH OUR OWN IDEAS ABOUT A REASONABLE SCHEDULE. WE CANNOT PROVIDE A COMPLETE ASSESSMENT OF NEW YORK CITY'S PLANS AT THIS TIME DUE TO LACK OF DETAILED TECHNICAL INFORMATION. HOWEVER, THE PLAN TO END OCEAN DUMPING BY 1998 IS MORE REASONABLE THAN THE DEADLINE OF DECEMBER 31, 1992 PROPOSED BY CONGRESSMAN HUGHES' BILL H.R. 4338. WHILE NEARLY 42 PERCENT OF THE NEW YORK STATE'S ANNUAL SEWAGE SLUDGE PRODUCTION OF 1000 DRY TONS PER DAY THAT IS OCEAN-DUMPED ORGINATE FROM THE NEW YORK METROPOLITAN AREA, NOT ALL OF IT ORGINATES FROM NEW YORK CITY. FIVE PERCENT OF THE STATE'S TOTAL ORGINATES FROM NASSAU AND SUFFOLK COUNTIES, AND THREE PERCENT ORGINATES FROM WESTCHESTER COUNTY. THE SCHEDULE REPRESENTS A GOOD-FAITH EFFORT ON BEHALF OF NEW YORK CITY; HOWEVER, IT MUST INCLUDE A CONSOLIDATED EFFORT FOR ALL OF THE NEW YORK METROPOLITAN AREA.

NEW YORK CITY WILL HAVE FULL COOPERATION AND ASSISTANCE FROM DEC IN CARRYING OUT ITS AGGRESSIVE DEADLINES. ON THE OTHER HAND, WITH THE MAGNITUDE OF SLUDGE DISPOSAL PROBLEMS (BOTH QUALITY AND QUANTITY), THE 1992 DEADLINE IS TOTALLY UNREALISTIC FOR NEW YORK CITY.

IT MUST BE NOTED THAT ANY ATTEMPT TO ACCELERATE THIS SCHEDULE WILL MEAN THAT OTHER CRITICAL WORK NEEDED TO PROTECT THE NEAR

SHORE AREAS MAY NOT BE ACCOMPLISHED, SINCE IT IS OUR ASSESSMENT THAT THE CITY OF NEW YORK IS CURRENTLY WORKING AT FULL CAPACITY. EFFORTS SUCH AS THE COMPLETION OF PROJECTS NEEDED TO BRING ALL 14 MUNICIPAL WASTEWATER PLANTS TO FULL CAPACITY, TO ELIMINATE ALL REMAINING UNTREATED DISCHARGES, AND TO ABATE THE SIGNIFICANT WATER QUALITY STRESSES DUE TO COMBINED SEWER OVERFLOWS MAY ALL HAVE TO BE UNREASONABLY DELAYED IF THE CONGRESS DEMANDS THAT SLUDGE MUST BE OUT OF THE OCEAN BY 1992.

IT IS ESSENTIAL THAT CONGRESS CONSIDER THAT IN ORDER TO IMPROVE THE QUALITY, ABUNDANCE AND BALANCE OF THE BISTATE REGION'S MARINE FISHERIES, MAJOR RESOURCES SHOULD BE DIRECTED TOWARD PROTECTING THE NEAR-SHORE ENVIRONMENT. ABATEMENT OF NON-POINT SOURCES OF POLLUTION, COMBINED SEWER OVERFLOWS, AND PROTECTION OF CRITICAL COASTAL HABITATS, ARE ALL URGENT AND COSTLY NEEDS. THE RANGE OF ACTIVITIES THAT MUST BE PERFORMED TO PROTECT THE QUALITY OF THE NEAR-SHORE OCEAN, BIOTA, AND THE RECREATIONAL USES IS WIDE INDEED. WATERFRONT PROTECTION ACTIVITIES ARE ESSENTIAL IN MANY COASTAL AREAS AROUND OUR MAJOR METROPOLITAN AREAS. MANY ABANDONED URBAN WATERFRONT LANDSCAPES HAVE BECOME ATTRACTIVE DUMPING GROUNDS. TIDES AND RUN-OFF OFTEN CARRY THOSE MATERIALS INTO THE NEAR-SHORE WATERS. REVITALIZING AND CARING FOR WATERFRONT AREAS IS ESSENTIAL. THE CORPS OF ENGINEERS SHOULD INCREASE ITS HARBOR DRIFT REMOVAL IN THIS AREA, AND CITIES WHICH DISCHARGE SEWAGE SLUDGE INTO NEAR SHORE WATERS SHOULD BE HELD TO AT LEAST THE SAME SCHEDULE AS NEW YORK.

NEW YORK STATE'S PROGRAM TO MINIMIZE NON-POINT SOURCE POLLUTION ANTICIPATED THE CLEAN WATER ACT OF 1987 AND HAS BEEN GIVEN MAJOR RECOGNITION BY GOVERNOR CUOMO IN HIS 1988 STATE OF THE STATE. THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION DEVELOPED A DRAFT STRATEGY TO DEAL WITH NON-POINT SOURCES IN JULY 1986 SO THAT THE STATE IS WELL PREPARED TO HAVE AVAILABLE BY THE CLEAN WATER ACT'S AUGUST 1988 MANDATORY DEADLINE, A FORMAL SOURCE ASSESSMENT, A BEST MANAGEMENT PLAN, AND A FOUR YEAR IMPLEMENTATION PROGRAM.

THE DEPARTMENT'S NON-POINT SOURCE MANAGEMENT PROGRAM CONSISTS OF TWO PARTS. ONE COMPONENT DEALS WITH DISCRETE NON-POINT SOURCES SUCH AS PETROLEUM AND CHEMICAL BULK STORAGE AND HAZARDOUS WASTE STORAGE TANKS AND LANDFILLS. WE HAVE A MAJOR PETROLEUM BULK STORAGE PROGRAM IN PLACE. IN NEW YORK CITY ALONE, 20,000 FUEL TANKS HAVE BEEN REGISTERED AND MANY HAVE BEEN PUT ON TESTING AND COMPLIANCE SCHEDULES; WE WILL HAVE A CHEMICAL BULK STORAGE PROGRAM IN PLACE STARTING IN 1988. WE HAVE LANDFILL REGULATIONS WHICH ADDRESS THE ISSUE OF LEACHATE; AND WE ARE DEVELOPING NEW HAZARDOUS WASTE STORAGE REGULATIONS.

THE OTHER COMPONENT OF OUR NON-POINT SOURCE STRATEGY INVOLVES DIFFUSE SOURCES FROM AGRICULTURE, CONSTRUCTION, FORESTRY, AND URBAN RUNOFF. WE ARE DEVELOPING BEST MANAGEMENT PRACTICES FOR THESE SOURCES. INITIALLY, WE WILL RELY ON TECHNICAL ASSISTANCE AND PUBLIC EDUCATION FOR THEIR IMPLEMENTATION. WITH REGARD TO AGRICULTURE, THERE WILL BE RECOMMENDATIONS FOR PESTICIDE AND

FERTILIZER APPLICATION, FEED LOT MAINTENANCE, AND MANURE SPREADING, FOR EXAMPLE.

REGARDING NEW CONSTRUCTION, THERE WILL BE A MANUAL ON HOW TO PLAN TO REDUCE SITE-SPECIFIC RUNOFF. MAINTAINING GREEN SPACE, AND BUILDING PONDS TO DIVERT AND HOLD RUNOFF, ARE AMONG THE RECOMMENDATIONS.

FOR URBAN RUNOFF, THE MOST EFFECTIVE BEST MANAGEMENT PRACTICES ARE LOCAL OPTIONS -- PET HYGIENE LAWS, STREET CLEANING, CATCHBASIN CLEANING, AND CONTROLLING TURF APPLICATIONS OF PESTICIDES AND FERTILIZERS.

NEW YORK STATE HAS ALSO JOINED FORCES WITH NEW YORK CITY IN TACKLING COMBINED SEWER OVERFLOWS WHICH ARE NOW CONSIDERED THE MAJOR SOURCE OF OUR COASTAL WATERS USE IMPAIRMENT SINCE THE FINAL TWO NYC SEWAGE TREATMENT PLANTS WENT ONLINE. THE EFFORT TO CONSTRUCT AND UPGRADE SEWAGE TREATMENT PLANTS IN NEW YORK CITY HAS TAKEN NEARLY A GENERATION AND HAS COST FEDERAL, STATE AND LOCAL GOVERNMENTS APPROXIMATELY $1.7 BILLION. ABATING THE COMBINED SEWER OVERFLOW PROBLEM WILL COST NEARLY AS MUCH.

COMBINED STORM AND SEWER SYSTEMS WERE CONSTRUCTED IN MANY OF OUR OLDER CITIES, INCLUDING NEW YORK CITY. A MODERATE RAINSTORM WHICH CAUSES A DOUBLING OF VOLUME TO THE SEWAGE TREATMENT PLANT, OVERWHELMS ITS CAPACITY TO TREAT THE FLUID, AND THEREFORE THE COMBINED SEWER AND STORM WATER IS DIVERTED INTO RECEIVING WATERS.

THE AVERAGE VOLUME OF COMBINED SEWER OVERFLOWS ON A DAILY BASIS IS 170 MGD; COMPARED TO 1.7 BGD TREATED SEWAGE. THIS WOULD NOT SEEM TO BE SUBSTANTIAL BUT FOR THE FACT THAT THE RAW SEWAGE IS DIVERTED AS *GIANT SLUGS OF WASTE,* THE SOURCE OF THE FOLLOWING POLLUTANTS: (1) FLOATABLE SOLIDS, (2) SETTLEABLE SOLIDS WHICH TEND TO FORM SLUDGE BANKS ON STREAM BOTTOMS, (3) PATHOGENIC MICRO-ORGANISMS WHICH POSE A THREAT TO HEALTHFUL USES OF THE WATERS, (4) OXYGEN DEMANDING MATERIAL WHICH CAN POSE A THREAT TO AQUATIC RESOURCES, (5) NUTRIENTS WHICH STIMULATE ALGAL BLOOMS, AND (6) TOXICS.

THE DEPARTMENT IS INTENSELY PROUD OF THE AFOREMENTIONED ACTIONS TO ABATE COMBINED SEWER OVERFLOWS. NEW YORK CITY HAS SHOULDERED THIS ENORMOUS TASK WILLINGLY AND WELL. PROBLEM ASSESSMENT HAS BEEN COMPLETED AND THE PHASE I REPORT WAS PUBLISHED LAST YEAR. FACILITY PLANNING (PHASE II), THROUGH FOUR CONCURRENT STUDIES (JAMAICA BAY, EAST RIVER, INNER HARBOR, AND OUTER HARBOR) IS JUST GETTING UNDERWAY AND WILL BE COMPLETED IN APPROXIMATELY 3 YEARS. IT IS ANTICIPATED THAT WHEN FINISHED, THE ABATEMENT PROGRAM WILL CONSIST OF A MIX OF OFF-LINE STORAGE, IN-LINE STORAGE, END OF PIPE TREATMENT, AND DISINFECTION. SIMULTANEOUSLY, WESTCHESTER COUNTY WILL BE MITIGATING THE EFFECTS OF ITS COMBINED SEWER OVERFLOWS INTO THE HUDSON BY MEANS OF SWIRL CONCENTRATIONS AND CHLORINATION.

WE BELIEVE THAT AN APPROACH WHICH CAREFULLY EXAMINES THE ALTERNATIVES AND THEIR ENVIRONMENTAL IMPACTS IS RESPONSIBLE AND PRACTICAL. WE CAN PROJECT THAT LANDFILL CAPACITY WILL NOT EXIST

NOR WILL THERE BE INCINERATORS, COMPOSTING OR DE-WATERING FACILITIES AVAILABLE TO HANDLE SEWAGE SLUDGE BY THE 1992 DEADLINE. WE BELIEVE THAT AN APPROACH WHICH ELIMINATES AT LEAST HALF OF THE SLUDGE DUMPING BY THE MID-1990'S AND THE REMAINDER A FEW YEARS LATER IS REASONABLE. THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION CAN ASSIST NEW YORK CITY IN THE DEVELOPMENT OF REASONABLE ALTERNATIVES WITHIN THE PERIOD OF TIME.

THANK YOU.

Mr. NOWAK. Thank you very much, gentlemen. We will be perhaps getting back to you at a later time, but as of now we have our last panel who have been patient also. I want to thank you for your presence here today and your patience. Our last panel is the Environmental and Pollution Control Interests panel. We have Mr. Richard D. Kuchenrither, I think, Water Pollution Control Federation; Mr. Fred Harper and Mr. Lee White, Conference of Coastal Agencies; Ms. Lynne Edgerton and Ms. Jessica Landman, Natural Resources Defense Council; and Mr. John Catena, who is representing the Oceanic Society.

We welcome you here. I might add that your statement has been received and will be incorporated in the record. We will go back—if you would like to present your testimony, we will the follow the schedule as you are called.

TESTIMONY OF RICHARD D. KUCHENRITHER, WATER POLLUTION CONTROL FEDERATION; FRED HARPER AND LEE WHITE, CONFERENCE OF COASTAL AGENCIES; LYNNE EDGERTON AND JESSICA LANDMAN, NATURAL RESOURCES DEFENSE COUNCIL; AND JOHN CATENA, THE OCEANIC SOCIETY

Mr. KUCHENRITHER. If I could read a brief paraphrased version of our testimony which has previously been submitted.

My name is Dick Kuchenrither. I am Director of the Residuals Management Services Department for Black and Veatch Engineers & Architects, headquartered in Kansas City, Missouri. I am also Chairman of the Residuals Management Committee of the Water Pollution Control Federation (WPCF). I am here today on behalf of WPCF, which represents more than 34,000 professionals across the United States, who are charged with the protection and improvement of water quality. Many WPCF members deal with the problems of sewage sludge management and disposal daily.

For the past 15 years, both my work and Federation responsibilities have centered almost exclusively around sewage sludge management. The projects I have been responsible for include planning, design, and operation of sludge facilities for numerous communities across the United States. Some of these are Boston, Philadelphia, Montgomery County, Maryland, Minneapolis-St. Paul, Oakland, Kansas City, Denver and Hillsboro County (Tampa), Florida. Many of these are the same communities that Congresswoman Schneider referred to earlier.

Working with these communities over the past 15 years, I have learned several valuable lessons in the area of sludge management that I hope to convey to you today. At the conclusion of my presentation I hope to be able to answer any questions you may have concerning sludge management from the perspective of an experienced sludge management practitioner.

Aside from the specific points discussed below, there are two themes that are common to virtually all sewage sludge management projects. The first is that nearly all sludge projects involve some degree of public controversy. This is true in every region of the country.

Secondly, the four laws of ecology authored by Barry Commoner in his book entitled, "The Closing Circle", are as relevant to sludge management today as they were when published nearly 20 years ago and perhaps most applicable of those is everything must go somewhere. And in some fashion each of the following specific issues that I am going to discuss relates to one or more of Mr. Commoner's laws of ecology.

Issue number one: Nationally sludge represents a growing concern. As shown in our written testimony, current EPA figures show nearly 50 percent of the sludge production of the United States today is land filled. Faced with diminishing landfill capacity, communities that rely on landfills are being rapidly forced to find other means of disposal.

Further exacerbating this problem is our ever-increasing efficiency of pollutant removal from our wastewater. The cleaner our wastewater, the more sludge we generate. It is estimated that, due to improved treatment, sludge quantities will double by the year 2000.

The disappearance of disposal options, such as landfilling with increasing sludge quantities means that non-landfilling disposal options will have to accommodate approximately three times the volume of sludge they currently do now by the turn of the century.

Issue number two, most sludges are not hazardous wastes. A vast majority of the sludges produced by wastewater treatment plants in the United States are not classified as hazardous wastes. Not only is this a very common misconception on the part of the public, but it frequently presents a significant obstacle to public acceptance. This is not to say that sludges might not contain materials that could be hazardous, indeed they may. However, many of these hazardous elements are also present in many of the materials and foods that we come in contact with daily.

It is also true that pretreatment programs implemented by many municipalities across the United States have been responsible for dramatic improvements in sludge qualities. Cities such as Boston, Minneapolis, and Denver have all seen improvements in sludge quality that can be traced to pretreatment programs. This improved sludge quality can lead to a wider range of disposal options available to a community.

Issue number three: No solutions are universally applicable. It is difficult to compare sludge management programs of different cities. Proper residuals management alternatives are dependent upon many site-specific factors that vary from city to city. These factors include numerous and complex siting, environmental, and engineering considerations. What is appropriate for one city or region of the country may be totally inappropriate for another. For example, agricultural land application has been practiced by Denver since 1978. However, the opportunity for this option in Boston is practically nonexistent, yet both are fairly large municipalities.

Issue number four: A limited number of real disposal options exist. At first glance, it may appear that there are a myriad of emerging and proven sludge management disposal options available to communities today. In reality, there are only five basic options available, with others being variations of the same theme. These five are: landfilling, land application, marketing and distribution, incineration and ash disposal, and ocean disposal. Further narrowing our options is the consideration that truly all paths of disposal eventually lead to the ground or the ocean.

While there are many emerging technologies in the area of sludge management, again many of which were mentioned by Congresswoman Schneider, all still produce residuals of some kind that require disposal. In addition, the utilization of these emerging technologies by the municipalities is difficult because of the risk that they face by investing many millions of dollars of their ratepayers' money, with little or no assurance that the unproven technology can be used successfully.

U.S. EPA's policy on municipal sludge management, adopted in 1984, endorses the concept of beneficial use. WPCF supports this approach and, in fact, is currently cooperating with EPA in conducting a national awards program to recognize outstanding beneficial use projects. Section 405(g) of the Water Quality Act of 1987 authorized up to $5 million a year for programs "to promote the safe and beneficial management or use of sewage sludge." EPA requested funding for these programs in fiscal year 1988 and in a supplemental funding request for fiscal year 1987, but no monies were appropriated.

When managed properly, a good quality sludge can be an asset. Since virtually all sludge projects contain some element of public controversy, residuals management represents one of the most significant challenges facing environmental engineers, wastewater treatment plant operators, and local officials today. These challenges will continue to grow as traditional disposal opportunities decrease and sludge volumes increase.

The biggest single obstacle to the implementation of a sludge program today is public acceptance. The regulations' credibility forms the foundation of our public acceptance programs. And, finally, Congress should appropriate monies for a beneficial uses grant program, as authorized by the Water Quality Act of 1987.

Thank you for your attention, and I would be happy to answer any questions that you may have at the appropriate time.

Mr. Nowak. Thank you very much.

Let's turn to Mr. Fred Harper, Mr. White, is he with you?

Mr. Harper. Yes, he is.

Thank you, Mr. Chairman, and Mr. Stangeland. We appreciate the opportunity to appear before you to discuss this matter which is of considerable importance to our members.

I am the Chairman of the Executive Committee of the Conference of Coastal Agencies, and Mr. White is our Washington-based Coordinating Director.

For many years I was the General Manager of the Orange County Sanitation District with overall responsibility for management and operation of the third largest municipal sewage treatment on the West Coast. CCA is a committee of the Association of Metropolitan Sewerage Agencies, an association of over 100 major sewerage agencies that serve over 70 million people. CCA was established seven years ago to serve its coastal members.

In February, we submitted a statement to the Merchant Marine and Fisheries Committee when they were considering the amendments to the Marine Protection Research and Sanctuaries Act. I would appreciate it, Mr. Chairman, if that could be submitted along with our written statement as part of the record.

Mr. Nowak. Without objection, so ordered.

Mr. Harper. Thank you.

In addition, we would like to submit for the record a statement that was also presented in February by Dr. R. Lawrence Swanson, Director of the Waste Management Institute of the State University of New York at Stoney Brook. He was the only scientist that presented testimony at that hearing, and I would appreciate if that could be included.

Mr. Nowak. Without objection.

Mr. Harper. Thank you.

I wish to digress for just a moment from the prepared remarks to expand upon some comments that were made a little earlier. Although they may not have intended to, they revealed too much, and that has to do with priorities. As managers of large treatment facilities with limited financial resources accountable to local elected officials and taxpayers who pay the bills, we must continually set long-term priority goals and budgets to meet the requirements of the State and Federal statutes. In other words, we solve the most pressing problems first.

My concern, and this is what I personally believe, that if H.R. 4338 with its unrealistic deadlines, fees and penalties passes in its present form, the current near-shore pollution, which is closing the public beaches in New York, New Jersey and other adjoining states, will be extended three more additional years than necessary. The dumping of municipal sludges 106 miles out in the Atlantic is not a measurable factor in the current beach pollution. However, this legislation mandates massive local effort and expenditures between now and December 31, 1992. This requirement will sap the physical and financial resources of the affected authorities, thereby delaying appropriate pollution control programs to correct the public health problem on the beaches. Until the near-shore problems are corrected, the beaches will continue to be polluted.

Now, Mr. Chairman, I would like to just comment from the covering page within our formal presentation, and that has to do with three points. One is the deadlines, another is the user fees and penalties and a third, which has not been proposed to you, permits for use of Federal lands.

On the deadlines, we feel they are unrealistic and from the experience I have had over the years it is totally—it is just impossible. To give you an example, in the community where I am from, Orange County, California, a six-year study was funded by State and Federal construction grant funds, covering the Los Angeles/Orange County populated areas. At the end of the study, we had about 70 options for handling sludge, and, of course, they were varying in degrees of desirability.

The problem was as we held public hearings in Orange County for what we thought should be the right program, the people in the areas that were going to be affected or thought they were going to be affected—again this thing that Mr. Stangeland has talked about, perception—just swept away our alternatives. In fact, one of the alternatives was a combined solid waste and sludge burning operation. The engineers had prepared a feasibility report, and the people in the area—this is before even our board of directors had an opportunity to read the report—became so incensed at what they thought was going to happen that there were 300 people who showed up at a Council meeting where this was not on the agenda and demanded that I explain the project at that point, and my own directors hadn't even seen the report.

Another time we were proposing a facility that was several miles away from any inhabited area, and 700 people filled a high school gym to tell us we were not going to do that.

Another time we were proposing—this was some years back—but we were proposing some user fees because we had been collecting monies as part of the property taxes paid by our users, and we had been told by EPA it couldn't be done that way because of the Clean Water Act. We couldn't get Federal funds unless we went to a user fee approach, even though our funds were dedicated funds. But this is what we did.

So we sent an announcement out, we notified every property owner—this is in Orange County—of this hearing to discuss this. We started out thinking we would have the hearing in our board meeting. It wound up to be what we call our famous parking lot meeting, where 2,000 people showed up, and I can assure you that our elected officials did not institute the user fee at that time.

So what I am saying is that unless there are some realistic programs and realistic dates, I personally believe that the managers of these agencies and elected officials are going to go by what the law tells them to do. And if the law says you are going to complete this by a certain date, get out of the ocean, that is where the money is going to go, that is where the effort is going to go. And the public that is concerned about the beaches and the ability to use the beaches are going to get short-changed.

The other issue is the ocean user fees and the penalties. It is just another imposition to distract from what should be done. If the schedules can be agreed upon with the affected agencies and EPA, they can go ahead and get the job done without jeopardizing these other programs that really are needed to solve the beach problem, let's forget the penalties. Only impose penalties when they don't meet the agreed-upon schedule.

The third issue is a new concept, you might say, and probably not appropriate for this particular legislation that is under consideration. But the situation is becoming serious of trying to find suitable sites, and even in California, we have a very difficult time. Going across from one county to another is a very difficult thing.

The use of Federal lands, suitable Federal lands that would meet the requirements of EPA and the agency that owns those lands or is responsible for them as a depository of last resort for sludge where there are no alternatives available makes considerable sense to us.

Thank you. That concludes my remarks. Thank you.

Mr. NOWAK. We will now turn to Ms. Landman and Ms. Edgerton, who represent the Resources Defense Council.

Ms. EDGERTON. Mr. Chairman, my name is Lynne Edgerton. I am a senior project attorney in the Coastal Project of the Natural Resources Defense Council (NRDC) in New York City, the City. With me is Jessica Landman, an attorney with NRDC's Clean Water Project in Washington, D.C.

During the last year, NRDC has taken an active part in the consideration of three inseparable aspects of New York City's plans for use and disposal of its sewage sludge: one, EPA's consideration of New York City's pending ocean-dumping permit application; two, EPA's regulations pursuant to the Clean Water Act governing sludge management, use and disposal; and, three, New York City's pretreatment program and NPDES permit applications. More recently, we have begun reviewing land-based alternatives for the beneficial reuse and safe disposal of New York City's sewage sludge.

The principal focus of today's hearings is whether New York City can phase out ocean dumping of sewage sludge by December 31, 1992—the deadline established in the proposed Ocean Dumping Phase-Out Act of 1988 (H.R. 4338).

NRDC's reply is yes: New York City can certainly stop dumping its sewage sludge in the ocean by 1992. Equally important, however, is whether New York City can phase in safe land-based beneficial uses and safe disposal of its sludge. Both goals can be met only if New York City takes aggressive steps now to improve its sludge management and industrial pretreatment practices.

In the past, New York City has not been able to phase in safe land-based management of its sewage sludge largely because it has never tried. Throughout the 1980s, New York City repeatedly chose to rule out beneficial use options and land-based disposal options in favor of ocean dumping.

NRDC believes there are six steps which should be taken immediately to solve New York City's ocean disposal problem. Congressional, EPA and New York City actions are all required. First, the congressional action needed. Congress should enact the proposed Ocean Dumping Phase-Out Act and mandate a phase-out of all ocean dumping of sewage sludge by 1992 or earlier. New York City's record shows it will not stop ocean dumping unless it is forced to do so. Indeed, New York still has not begun to implement the interim sludge management practices recommended by its own consultants in 1978 and 1980. Nor has the city initiated any pilot project or any alternative disposal for any of its 14 treatment plants.

Indeed, today's testimony by New York City has for the first time since 1981 produced the first public mention of a tentative consent agreement between New York City and EPA to phase out ocean dumping by 50 percent in 1995 and by 100 percent in 1998. We assume that this means in the context of the 1981 court decision and the two interim orders entered in 1981 and 1986 implementing that order.

Congress' hearings have provided the impetus for New York City to return to the Federal District Court to set phase-out deadlines, and perhaps they plan to do that prior to Congress' taking action on this bill. Perhaps they intend to do that in order to ask Congress to exempt their consent agreement from H.R. 4338. That appears to be the substance of what Mr. Shultz said today.

Second, EPA action is needed. First, EPA should issue rules governing sludge management use and disposal as required by the

Clean Water Act. NRDC does not believe the absence of national sludge regulations is a valid excuse for New York's failure to evaluate land-based alternatives to ocean dumping. But we do believe that EPA's decade-long delay in issuing national sludge regulations has left the public unprotected against potential hazards of toxics and sewage sludge for far too long.

Second, the Administrator of Region 2 of the EPA should deny New York City's application for a three-year permit to continue dumping. In 1981, New York City persuaded the court that it deserved the right to present evidence of the effects of land-based alternatives in connection with its ocean-dumping permit application, but New York did not submit a new application to ocean dump its sludge until 1987, and in that application essentially compared ocean dumping to only one land-based method, incineration. Yet incineration is the most environmentally troubling land-based option and may be the most expensive. In fact, the city's application to the EPA seems designed to make the best possible case for continued ocean dumping. It omits any serious analysis of land-based use and disposal methods used by other cities. It fails to use up-dated data, it fails to consider new technologies for safe disposal.

Most importantly, it fails to do a plant-by-plant analysis of the options for using and disposing of each plant's sludge. This omission is critical because almost certainly different sludge management solutions will be appropriate for different plants and will be available on different time tables.

As of early June of this year, NRDC believed Region 2 was leaning toward granting New York City's three-year permit application in exchange for New York's promise to study land-based alternatives for the next three years. The testimony made today may mean they have reached just that agreement, and, in addition, they have reached an agreement to phase out dumping over the next four years, until 1995, by 50 percent, and by 100 percent in 1998.

Thirdly, in the short term, EPA should control toxics in ocean-dumped sludge through use of NPDES permit limits. In the absence of national sludge regulations, the Clean Water Act says that EPA must take interim steps to protect health and the environment against harm from sludge. This means writing appropriate sludge containment limits and management practices into the discharge permits of New York City's sewage treatment plants.

NRDC has formally asked EPA to place ocean dumping sewage treatment plants on the high priority list for these sludge limits. The agency's initial response has been favorable, but we need a firm commitment.

Finally, New York City. New York City deserves the lion's share of the blame for this crisis. There are two main actions which New York City should take immediately. First, the city should fully implement its industrial pretreatment program as the best way to attack sludge contamination problems and to broaden both its short-term and long-term disposal options. As long ago as 1978, a study of alternatives to ocean dumping indicated that full implementation of the city's pretreatment program for electroplaters and metal finishers would make the sludge from eight of the city's publicly owned treatment works—POTWs—clean enough to use as a soil conditioner, but the pretreatment program has not lived up to its promise.

In 1987, nine years later, about 68 percent of New York's significant industrial users still were either out of compliance or had a compliance status of unknown.

Next, New York City must begin to immediately identify and implement a plant-by-plant search for safe use and disposal methods for sewage sludge, based upon the experience of other cities and the availability and appropriateness of new technologies. Most cities have never used the ocean for disposal of sewage sludge but have managed to dispose of their wastes. Some programs have helped to pay for themselves, while other emerging technologies have shown the potential to be profit-making.

I won't cover our list of what other cities have done, and the tried and true methods, because they have been amply covered by other people. However, we were able to identify several new methods to handle sewage sludge which have proven to provide promise and should be examined.

For example, one not mentioned today was one undertaken by Houston, Texas. Houston recently published a $150 million contract competition for the best sewage disposal method. The winner was a deep well, wet air oxidizing system which apparently uses the heat produced by decomposing bacteria in a deep well to break down and detoxify sludges. Unlike deep well injection, which leaves wastes in rock formations deep underground, this system allegedly retrieves all of the waste that it pumps into the well. The resulting product is supposed to be chemically inert, less bulky and safe for landfilling.

Additionally, we are told that because it occurs under water—I mean under land, there is no odor. I have also been told by the President of the company that one of these plants can be brought on line in 18 months from the time the ground is broken.

The other new technology that we are aware of is one by Environment Canada, which is currently testing a process which produces usable fuel from raw sludge. It expects to have a test facility in operation by 1989.

NRDC does not specifically endorse any of these methods as the solution for New York. But we do believe that the city must look to other cities' experiences, as well as to potential technologies, for answers. And as a first step toward any solution, New York must aggressively speed up implementation of its pretreatment program.

Thank you for asking NRDC to testify. We would be happy to answer any questions at the appropriate time.

Mr. **Nowak**. Thank you very much.

We will now turn to the Oceanic Society.

Mr. **Catena**. Thank you. My name is John Catena. I appreciate the opportunity to testify today on behalf of the Society and the 20 other organizations listed in my written statement.

My message today is a simple one—ocean dumping of sewage sludge and industrial waste must end. This practice has already contributed to serious damage of coastal waters. We cannot afford to shift the risk to deeper waters, where the long-term consequences are unknown, and where there are already strong signs of damage from dumping of industrial waste.

Those who suggest that sludge dumping is safe and that the 106-Mile dump site is devoid of any life have learned nothing from our past mistakes and have not carefully examined the facts. Sewage sludge dumping has virtually destroyed the 12 Mile Site in the New York Bight, resulting in the closing of shellfish beds, decreased diversity of marine life, reduced catches of fish, increased incidence of fish disease, and mutation of fish larvae. Less visible effects at that site include findings of high levels of heavy metals and toxics in the sea floor sediments. It was these very findings, among others, that led EPA to close the 12 Mile Site.

But moving the sludge dumping to the 106 Mile Site offers little comfort. The complex and unpredictable oceanographic conditions at that site can transport waste over a 45,000-square-mile area of the biologically productive continental shelf—as illustrated in Figure 1 of my testimony. This map clearly illustrates that the decision by New York and New Jersey to dump their sludge in the ocean does not solve their problem. Instead, they have created a much larger problem—not only for their own citizens, but for citizens of other Eastern seaboard states as well. The results of EPA's recent monitoring, as discussed by Mr. Caspe, are particularly distressing, because it is in the top 20 to 50 meters of the water column that most of the biological activity occurs.

Because of the dynamic oceanographic conditions at the 106 Mile Site, monitoring of long-term effects will be extremely difficult. Monitoring is also made more complex because the system is already stressed due to nearly 30 years of industrial waste dumping. Continued dumping could have far-reaching consequences for a wide variety of life forms at the site, including important commercial and recreational fisheries that generate one billion dollars annually along the Northeast and Mid-Atlantic coast.

The risks posed by the presence of heavy metals in the sewage sludge are of particular concern. As shown in Table I of my testimony, roughly 264,000 kilograms of zinc, 227,000 kilograms of copper, 146,000 kilograms of chromium and 100,000 kilograms of lead were dumped by New York City at the 106 Mile dump site in 1987. We must keep in mind, however, that this represents only 45 percent of the total sludge dumped at the site and for reasons explained in my written statement we believe even these numbers are grossly under-estimated due to New York City's testing method.

The environmental consequences alone of sludge dumping make it an unacceptable practice. Under the Ocean Dumping Act, a needs determination is required to justify continued dumping and that requirement has not been met. As we have heard today, available land-based alternatives do exist, and over 100 sewage treatment plants instituted land-based alternatives to meet the 1981 deadline for ending ocean dumping of sludge.

The Oceanic Society and the other sponsors of my testimony subscribe to a hierarchy of waste management that places beneficial uses of waste at the top of the hierarchy as preferred options. For sewage sludge, such alternatives include use of the sludge as compost. Waste disposal, whether it be on land or at sea, is the least preferred option.

However, none of the alternatives for managing sludge—including ocean dumping—are suitable for highly contaminated sludge. To reduce and minimize the heavy metals and other toxics that contaminate the sludge, current dumpers can and must take immediate steps to pretreat and reduce industrial wastes that enter their treatment plants.

We recognize that it will cost a substantial amount of money to implement better alternatives. But that cost is insignificant when compared to the costs of continued dumping, given the adverse impacts to fisheries, to tourism, and to the health of marine and coastal ecosystems. Economic concerns cloaked in "voo doo" science that dismiss or ignore these impacts are misguided.

The Oceanic Society and other sponsors of our testimony look forward to working with you, Mr. Chairman, the sponsors of the legislation, and other Members of Congress to implement environmentally preferable alternatives without undue hardship. While in our view environmental considerations warrant an immediate phase-out of ocean dumping, some delay may be warranted to ensure that appropriate alternatives are put into place. We believe the 1992 phase-out deadline as proposed in H.R. 4338 serves that purpose, although we would prefer the 1991 deadline contained in S. 2030. I have addressed other substantive and technical recommendations for H.R. 4338 in my written statement, including a recommendation that this legislation should not be amended to allow for ocean incineration.

In conclusion, there have been longstanding warnings that we must stop using the oceans as our waste bin for toxic pollutants. We must stop the archaic way of thinking that "dilution is the solution to pollution". The time for action to end ocean dumping of sewage sludge and industrial wastes is now.

Thank you.

Mr. NOWAK. Thank you very much. We started out this process looking at the differences between the bills, and I would like to see if each of you could focus on the differences over in the Senate bill, trying to accomplish what I believe is everybody's goal, including New York City, and everybody in New Jersey to move from the ocean sludge dumping that is going on. And I think the two approaches are somewhat different not only in the deadline, which would extend one year more in the House bill, but in the penalties that are envisioned by the House bill. We go to $1,000 to $5,000 per dry ton, and in the Senate bill we are talking about $400 to $800 per dry ton. I am trying to analyze where those fall in relation to the kind of economic costs we are going to be involved in here. We would believe that other communities are incinerating at somewhere between $120 to $160. Is that the correct range that presently is being incinerated in your experience?

Mr. KUCHENRITHER. That would be on the low end of the range. Let me comment first about the timing, the time issue. And this I can do from experience of a couple different sludge studies that I have been responsible for preparing.

In Denver, for example, which practices dual utilization, composting and agricultural land application, there is not siting controversy involved, essentially no public opposition study, and they had a fairly good idea of what they wanted to do ahead of going into the site, a good idea. It took them approximately four years before they got their complete plan in place, and that is a best case scenario.

Philadelphia, everybody points to 1980 as the year Philadelphia signed their consent decree and Philadelphia has done a fine job in getting out of the ocean and doing some beneficial things with their sludge. But actually they started several years in advance of 1980 in a pilot project for composting and some other high tech alternatives. So I think the Philadelphia facility, the full-scale composting facility, is still not quite complete. However, they are composting all of the sludge they produce there.

So if you include all the time it has taken for them to develop a market for the compost product, it has taken them approximately eight years, and again they had no siting controversy, and public opposition to the facility located adjacent to their Southwest water pollution control plant is fairly minimal.

Boston, on the other hand, represents the other extreme where perhaps even an interim plan which Boston is in the process of implementing now, it is going to take them approximately six years. This is an interim plan the private sector is participating in very heavily, and has relatively high costs.

In terms of the cost and the penalties associated, I think sludge management costs for a typical municipality, large or small, the highest we see is, say, for example, in a city like Philadelphia you are looking between $200 and $300 per dry ton, and that is beneficial utilization, some land application in New Jersey. Incineration costs can be significantly higher than that, but it depends very much on the sludge characterization, what sludge is going into the process.

Ms. EDGERTON. We would prefer the earlier date for the phase out of dumping. We would prefer to see it get going sooner if we could be assured that the land based alternatives implemented were safe.

Mr. NOWAK. I am sorry.

Ms. EDGERTON. That would only be if we were assured that the land based techniques were implemented and were safe.

Mr. NOWAK. Is incineration safe?

Ms. EDGERTON. We are very troubled about the prospect of incineration for New York City of its presently contaminated sewage sludge, and we are currenlty looking at that.

Mr. NOWAK. The State of New York provided a site outside of the City of New York, it could be, oh, a landfill. Do you think that would bring into place perhaps some other environmental players who would perhaps object to another location?

Ms. LANDMAN. We think that for all of the alternatives New York City will be considering, the presence of toxics in the sludge is a question that will have to be addressed before those alternatives can be implemented. That includes needing to clean the toxics out of the sludge before it is ocean dumped.

That is one of the reasons why we feel the swift implementation of a better pretreatment program in New York has to go hand in hand with the development of these land based alternatives.

So for all of the land based alternatives, including incineration and land application or land filling, reduction of the toxic content of the sludge is going to be critical.

Mr. **NOWAK**. Well, how do we handle that in this bill, though, we are just talking, you know, about the limitation of sewage and sludge. Now we bring into, I don't think there is anything else in the bill that could lead us into mandating say, the priorities for New York City as far as pretreatment or you know these programs that are out there already.

I mean, how do we, what I guess I am saying if this is mandated, does this as it has been alleged, turn all of their attention in New York City to this problem at the expense of other perhaps more critical problems that are in the environment, including air pollution?

Mr. **HARPER**. Mr. Chairman, may I address that question?

Mr. **NOWAK**. Sure.

Mr. **HARPER**. I believe that EPA itself has adequate authority in developing of any NPDES permit or in designating any disposal site or site that has been approved for land application of sludge and to impose limits.

In that permit will be the toxic elimination requirements that will be suitable for that particular site.

Ms. **LANDMAN**. Mr. Chairman, we would agree that EPA does have the authority. In fact, we have urged the EPA to exercise its authority in the interim, before it promulgates its sludge disposal regulations which are now nearly a decade behind schedule. Those regulations will set national uniform standards for toxic pollutants in sludge for all disposal methodologies. Before they are completed, the Clean Water Act does require that EPA take whatever steps are necessary to protect public health and the environment against toxics in sludge, and EPA has established a strategy for doing that by inserting sludge limitations and management practices into the NPDES permits of plants where sludge is of immediate concern.

They have indicated that they are going to treat sewage treatment plants which incinerate their sludge as priority facilities and we have urged them to do the same with ocean dumping facilities.

We believe that EPA has authority, and should exercise it right away, to begin to place into permits of the sewage treatment plants of New York City limitations that could be implemented through the pretreatment program that would protect the marine environment in the interim while we are waiting for a phase out of the sludge dumping in the ocean.

Mr. **NOWAK**. The appearance here of Mr. Harvey Schultz and Mr. Langdon Marsh, to my knowledge there has been no movement by the New York state legislation to pass anything along these lines as far as removing their communities from the ocean. I wonder if either of you, especially Ms. Edgerton, since you are from New York City, if that has been a topic there in the state legislature? Or does this just come up out of the blue?

Ms. **EDGERTON**. I am not aware of it being a topic in the legislature. We have taken the position that New York State needs to become a key player in this effort. New York State has developed sludge spreading regulations and it is going to have to play a very important role in where this sludge goes.

They also have air pollution permitting requirements—not permitting requirements but regulatory schemes—and so one of the things that I was told by someone high up in New York State is that two or three of New York City's 14 plants currently have sludge which is compostable. But that the problem has been, up until now New York has chosen to analyze its problem on an all-or-nothing basis.

For example, what can we do with all of our sludge? Incinerating all of it, versus putting it all in the ocean. And that what, our belief is that what New York needs to do is go about this big problem, trying to solve this big problem, in steps. Take bit sized pieces, figure out what works for each plant based on the characteristics of that plant.

Mr. NOWAK. And you mention that two or three plants already have clean enough sludge to become composted.

Ms. EDGERTON. We have been told that by someone high up in the New York State government and we were, it was confirmed informally in a conversation with EPA that I believe it is the Staten Island plants that are cleaner.

Ms. LANDMAN. If I may, Mr. Chairman, New York State is not blameless in this enterprise either because, as you know, under the Clean Water Act, a state that has responsibility for implementing its permit——

Mr. NOWAK. They have been issued the permit?

Ms. LANDMAN. New York has the responsibility for issuing the NPDES permit, but the state has not sought and obtained from EPA the authority to manage its pretreatment program and the Clean Water Act provides that a state which manages its NPDES program must also manage pretreatment to avoid the sorts of problems you get when one party is in charge of one aspect of an NPDES permit and another party is in charge of the other.

And that confusion contributes to the very slow pace at which New York City has implemented an effective pretreatment program. So we have urged New York State to take responsibility for its pretreatment program and have pointed out to them that it puts them in violation of the Clean Water Act not to have done so.

Mr. CATENA. I have one comment regarding activity in the New York state legislature. I have been told, I can't give you specifics, but a state legislator from Long Island is about to introduce a bill which is similar to New Jersey's law that just passed.

Mr. NOWAK. But he has not introduced it yet?

Mr. CATENA. I am not sure of the status of it.

Mr. NOWAK. Could you identify his name?

Mr. CATENA. I can get it for the record.

Mr. NOWAK. I would appreciate that. Let me turn to Mr. Stangeland at this time.

Mr. STANGELAND. Thank you, Mr. Chairman. Mr. Kuchenrither, does the—so I am clear, does the Water Pollution Control Federation have a position on this bill and what is that position?

Mr. KUCHENRITHER. Yes, sir. We definitely issued a position paper a year ago and came down squarely in the middle. Our membership is as diverse as is the membership of this committee and therefore on a topic such as ocean disposal, it is virtually impossible to gain a consensus opinion from the Federation and in part that is one of the main reasons why I am here because one thing we can do is provide a resource and information as to what others are doing with their sludge.

But as I recall the Federation's position on ocean dumping, it said, yes, the ocean is potentially a source of, for disposal, but more studies are needed. So essentially we didn't say much in our position.

Mr. STANGELAND. I didn't want to be liberal on that, I gathered that you thought we had very few options as to what should be done and this is one that shouldn't be precluded.

Do you feel EPA's current regulatory framework accurately evaluates the relative advantages of one disposal option over another or are their regulations and approaches prejudiced for or against any specific option?

Mr. KUCHENRITHER. No, Congressman, I don't think that regulations favor one option over another. I think it would be difficult for me to overemphasize the importance that regulations play in implementing a sludge management program. And further, those regulations have to be well founded. We obtain a lot of public support. Our agency obtains a lot of public support when they can point to regulations, be it federal or state. Most states do have, including New York, very good, well founded sludge management regulations in place.

Perhaps they need updating. They have been in place for many years now but sludge is regulated in most states. And regulations that are not well founded, that after they are published, are proven to be inadequate will definitely do— have the potential of doing more damage to beneficial utilization cause of sludge than virtually any other factor.

Mr. STANGELAND. Mr. Harper, could you give us your reaction to the language in Section 3 of the bill requiring all discharges in the ocean to be in compliance with Section 403(c) ocean discharge criteria and how will the requirement effect Orange County's ocean outfall research project?

Mr. HARPER. First of all, I have to be enlightened on 403(c).

Mr. STANGELAND. Why don't you review that and we will come back to that question. In the absence of time, I will just touch on your discussion of siting in federal lands. And I am a little concerned there that if you talk about putting this on Interior land or Forest Service land or whatever, you will run into the same kind of hornet's nest. There is more turf protection in the Federal Government and an unwillingness to cooperate as there is out there in local communities. But it might not be too bad an idea.

Ms. Edgerton, New Jersey officials believe they can end sludge dumping by looking at land-based incineration and I guess I would like to have you comment on how realistic is it to rely on that by 1992 or 1993 when you in your testimony said it might be the least satisfactory land-based alternative. And I would also like to have you, and I will paraphrase it because I didn't write it down, you said you believe New York could get out of ocean dumping within the confines of the time frame that this bill sets up, but then you also made a caveat, so long as the alternatives were safe and I guess I wonder, does NRDC do any research to provide some advice from counsel as to what is an acceptable alternative and you know what is the cost of that alternative, that type of thing, for some direction?

It is easy to criticize and say, well, and just let me go back a little bit and in discussing this with New Jersey, with the gentleman from New Jersey, I asked him the question, when it was passing in the legislature how did the environmental community react? I know New Jersey is a strong environmental community.

He said they were ecstatic that we were getting it out of the ocean. And I said did they make a commitment that they would not be opposed to some other method, such as incineration, and the aerial problems that incineration might bring or land based. And he advised me they made no such commitment.

My concern may well be and it troubles me that we get rid of ocean dumping then, but the environmental community has problems with—and I guess one thing we have to face as we become more populated, people pollute. And we will become more and more populated. So at some point in time we have to determine what is the least environmentally degrading alternative we have. And then we got to go with it.

We just never ever will get this environment as pure and clean as it was when we had a whole lot fewer people and a whole lot fewer of these nice convenient plastics to use, you know, they are real nice for those people who use them, but to get rid of them, and that is the dilemma that we are in in this whole situation.

Ms. LANDMAN. The answer to your question; "how do we decide which of the alternatives is the safest one among the options available?" turns in large measure on the sewage sludge use and disposal regulations that the Environmental Protection Agency is supposed to be writing under the terms of the Clean Water Act—and which, in fact, are now already overdue.

Those regulations are intended to establish what levels of different toxic contaminants can be present in sludge for various disposal options, and still have the sludge be acceptable for disposal. Once we have those regulations, it will be a lot easier to measure the available options and determine which ones are proper for the sludge from New York City. That is one of the reasons we think that the approach that this Congress ought to urge is a several-pronged one, including both the Ocean Dumping Phase-out Act and pressing the EPA to issue the sludge regulations. That will help to enable municipalities to decide among the options, based upon the quality of their sludge.

We said in our testimony that incineration was the most environmentally troubling option based on the fact that EPA has decided that, as it deals with sludge options before its regulations are completed, it ought to look to incineration first because of its concerns about the toxics which may be present in that sludge.

Therefore we think the fact that New York sludge today is quite heavily contaminated, makes incineration look rather unappealing with New York's sludge of the quality it is today. That in turn is why we are urging that the third prong also go forward: that the pretreatment program for New York City also move full steam ahead, so that, come the 1992 deadline, incineration need not remain environmentally unacceptable because sludge will, we hope, then be clean enough to incinerate as well as be landfilled or land spread.

Mr. STANGELAND. Let me ask you this question, because this is some territory that I am not real familiar with. You say you have sludge that has a fair concentration of heavy metals, cadmium, whatever, and you incinerate it, can those contaminants go into the air in the smoke or do they stay and go into the ash? A concentrated form? Did I ask my question correctly?

Mr. KUCHENRITHER. The answer is both places. Mercury is very volatile and it will escape in the fly ash we call it. It goes up stat. And on the other hand, cadmium and lead are very heavy and they will go to the bottom ash. But eventually again if you are doing a good job in particular the emissions control from an incinerator, you should be able to capture a vast majority of those metals.

When it comes to the suitability of sludges for various end uses, it has been my experience that there are very few sludges in the United States that are not suitable for say land application. I think in earlier testimony it was mentioned and I believe it to be true that the quality of sludge from the 14 New York treatment plants covers a broad spectrum of quality, but on the average, that sludge is not better or worse a quality than say the sludge in Minneapolis/St. Paul or in Los Angeles.

At their high hyperon plant which has the control technology on incinerators today. And that sludge is, that incinerator has been permitted in perhaps the most stringent air quality base in the United States. It is the first time that this train of emission controls has been used on a sludge incinerator. I am talking in Los Angeles now.

In preliminary tests, it indicates that emissions are even lower than what they had anticipated during their permitting process.

Mr. STANGELAND. Now to go to the other direction, we intensify our pretreatment and so we take these, there are very serious contaminants out to get them down to a very minimum level and the sludge can be composted. What is the next step with the concentration and the high concentration of those highly contaminated pollutants? Are these easily handled or disposed of? And I would have no objection to the environmental group commenting on this as well. I am just exploring here.

Ms. LANDMAN. I will be happy to take a first crack at it, and I will leave the more technical answer to my colleague here. The pretreatment program envisions that it will be the industrial facility which would be responsible for removing the pollutant before it reaches the sewage treatment plant. That would mean, in the case of electroplaters who remove heavy metals, the result might be a heavier concentration of heavy metals in the sludge of the facility that was responsible for generating it.

That means first of all, a smaller quantity of more heavily concentrated pollutants that could be dealt with in a different kind of disposal setting, including a hazardous waste setting if that is appropriate; and secondly, it means that the viability of recapturing some of those metals and reusing them becomes more attractive.

It has been the case as the pretreatment program has matured, people have learned that they could either adjust the processes at the plant so they didn't generate as many hazardous wastes, or they could make use of it. That is apparently true for the metal finishing-electroplating industry in many cases.

Mr. **Stangeland**. I think that answers my question here. One last point and I am just hoping to state this. Given that New York may not have done some of the things they probably should have been doing because of the lawsuit, because they were, they figured that as they stated here, they could dump at 106 site on into eternity and thought that that was their best and easiest solution, given the volume of what they have and the problems on land, do you really think it is realistic to mandate the kind of time frame with no flexibility as they have asked for some flexibility?

I know that may be a hard one for some of you to answer, but I think what we have to do is try to be as objective, to get the end result as rapidly as possible but within some reasonable time limits, based on EPA's situation, based on New York's situation, based on cost, the whole thing.

Mr. **Kuchenrither**. I think if we all recognize that yes in fact I think New York can implement other alternatives that are land based. But, again, one of Mr. Commoner's laws that I didn't have time to comment on is there is no such thing as a free lunch, aka, all it is is money and in this case, time. And I think given the proper amount of time, that New York will be able to implement land based alternatives in a fashion similar to other large cities on the east coast.

Ms. **Landman**. If I could just respond to that quickly.

Mr. **Nowak**. You answered that, that they could accomplish it in time. And time is sort of out there as a vague factor. They are specific requirements in the bill. I wonder if you would give us your best estimate as to knowing the permitting procedure, knowing a little bit about the New York sludge situation, what you would, if you were guided with that decision, what you would bring forward?

Mr. **Kuchenrither**. I think that based, understanding and having acute understanding and many battle scars to show it, based on the siting and permitting that faces New York, I don't believe that an eight to ten year time frame is unreasonable. I think that perhaps there are some things that could be done to shave that time frame, perhaps public sector involvement, but on an overall completely out of the ocean basis, a ten year time frame is not unreasonable, based on what we have seen in other similar sized municipalities.

Ms. **Landman**. We heard today the testimony from New Jersey, a state has committed to meeting its time frame. New Jersey says that they can do it, and they are committed to doing it. I think the major difference we hear is the difference that Congresswoman Schneider was talking about before: a difference in political will.

We believe, based on the record that New York state and New York City have built up over the years that New York City will not do anything until it is forced to do so, and without this legislation, they will not feel the stick. They will only see the carrot of ocean dumping in front of them.

They have shown that the work they need to do will expand to fill all of the time available. If they are given a more extended time frame, any extensions of time will be sought in 1992 or 1996. Whenever the deadline is, that is the time they will expand to fill.

Mr. STANGELAND. Based on the testimony of both groups, New Jersey envisions incinerator process and they have on their waste water treatment facilities adequate property to build those incinerators. New York comes back and says, first of all incineration probably will not be acceptable in New York. We don't think we can incinerate, therefore, we have to look for land. We don't have land.

I don't think you can, I personally and I have no interest, I am from Minnesota, hold each to an identical, same standard because I think there are some characteristics that are extremely different. And I think we just, my problem here is trying to be as objective as I can. I don't agree in banning ocean disposal completely.

I think there are technologies that make it a viable alternative. Maybe EPA hasn't been stringent enough. But I think that the ocean is a remarkable resource. I don't think we can damage it if we have the proper kind of distribution methods and the lowest level possible of contaminants in that sludge.

But the train is on the track, the locomotive is in gear and this bill will pass. If it is going to pass, what I am trying to do is find out where I am going to come down to be the most responsible to get this done and yet keep New York's feet to the fire.

I don't want to let New York off the hook.

Ms. EDGERTON. Well, Mr. Stangeland, New York state came in today and said they were going to help and I think that is a very optimistic point. I think that that has to be developed in a very forceful way, and NRDC will be working with New York state.

New York state now has a very fine commissioner for the Department of Environmental Conservation, Tom Jorling. And if they get committed to helping New York City solve this problem by 1991 or 1992, that will go a long way toward helping with the problem.

Our difficulty is that we, as my colleague has said, we simply have read the record carefully and we do not believe that New York City will do anything other than study by 1991 or 1992, unless this bill is passed.

In fact, that is, if we understand their testimony today, they are busily working on a consent order to take to the court to that effect.

And then they are going to come back with that consent order to the Congress and say, "don't you have faith in your judiciary?" And "the court is handling it now." So that is our primary concern with respect to this issue, and that is a principal factor in why we strongly support the 1992 and 1991 deadline.

Mr. STANGELAND. I thank the panel. I yield back my time, Mr. Chairman. I thank the panel and thank you for your indulgence.

Mr. NOWAK. Just to mention, you mentioned cooperation that you have had with Mr. Jorling on this matter and similar matters. He has written and we probably should include his statement which was sent, I believe, to all the Members of the Public Works and Transportation Committee, where he refers to the bill that we are discussing today and I would like to state the third paragraph which I guess is the operative paragraph to what you just said.

He states:

"We believe the responsible and practical approach is carefully to examine the economic and environmental consequences of alternative disposal methods before imposing a strict deadline on ocean disposal. While some alternatives are theoretically possible, the fact is that landfill capacity does not exist nor will there be incinerators, composting or dewatering facilities available to handle sewage sludge by the 1992 deadline. We believe that an approach which eliminates at least half of the sludge dumping by the mid-1990's and the remainder of a few years later is reasonable. The New York State Department of Environmental Conservation assist New York City in the development of reasonable alternatives within this time frame—or I am sorry—within this period of time. I hope that you will carefully consider the arguments presented in support of our position as the legislation is marked up by your committee. If you have any further questions, please call.

And I guess this was sent to all the congressional delegations, the Honorable Alfonse D'Amato and the Honorable Patrick Moynihan. And that was dated July 29, 1988. And you have no other information as to his position?

Ms. EDGERTON. No, we don't, but it is clear that we have our work to do.

Mr. NOWAK. The difference, of course, it seems to me, in trying to look at these alternatives, I think you mentioned already there are two or three plants that could be used or composting could be used. And I suppose if you phased in those two plants or three plants and then you looked at other alternatives, one of which may be incineration, and you broke it down in that way, perhaps we could get the state to participate to a heavier degree to accomplish this time table quicker.

But this was their position that they have given to, I am sure, Mr. Molinari and Mr. Roe and everybody else on the committee.

And so I thought it was interesting when you mentioned there is a bill which was filed or will be filed which would match New Jersey's yearly withdrawal. But unfortunately, we are not going to have the time on this subcommittee because we merely have a sequential referral on this bill, and it will probably move through the Senate and, of course, we will have to try to get the consensus on this committee to have a role and influence on even the Merchant Marine bill which has already passed before the Rules Committee if we are going to have any impact in the mark up of the bill to the Merchant Marine Committee.

But does anybody else have a comment? I am sorry.

Mr. HARPER. Mr. Chairman, may I respond to Mr. Stangeland's question to me about the provision in the pending bill about the prohibition of ocean discharges. Primarily we are talking about Section 403(c) of H.R. 4338.

First of all, I don't believe it will have any effect because of the legislation that authorized the Orange County deep ocean research project. In that legislation, it requires the Administrator of EPA to determine whether there would be any detrimental effect on the environment before he can issue that research permit.

However, we did request to Chairman Glenn Anderson and also from Mr. Packard, that the committee report language indicate that our project could continue even if ocean disposal is banned.

Thank you.

Mr. NOWAK. Thank you, very much.

I want to thank you for your patience, for you commitment to staying here during the hearing today and providing, especially in your written testimony, great detail on this very complex subject.

And we will be looking forward to trying to gain a consensus, some of which I think is possible because of your participation. I want to thank you for your appearance here and your parent organizations for, I hope, sending you here.

Thank you very much.

[Whereupon, at 5:40 p.m., the subcommittee was adjourned.]

[The prepared statements of Mr. Kuchenrither, Mr. Harper, Ms. Edgerton, and Mr. Catena follow:]

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Statement of
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On Behalf of the
Water Pollution Control Federation

Before the
Subcommittee on Water Resources
House Public Works and Transportation Committee

Hearing on HR 4338
August 2, 1988

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TESTIMONY OF RICHARD D. KUCHENRITHER
ON BEHALF OF THE WATER POLLUTION CONTROL FEDERATION
BEFORE THE WATER RESOURCES SUBCOMMITTEE
AUGUST 2, 1988

INTRODUCTION

My name is Dick Kuchenrither. I am Director of the Residuals Management Services Department for Black and Veatch Engineers & Architects, headquartered in Kansas City, Missouri. I am also Chairman of the Residuals Management Committee of the Water Pollution Control Federation (WPCF). I am here today on behalf of WPCF, which represents more than 34,000 professionals across the United States, who are charged with the protection and improvement of water quality. Many WPCF members deal with the problems of sewage sludge management and disposal daily.

My testimony today will provide general information about sewage sludge disposal practices and problems. I welcome the opportunity to answer your questions about specific disposal options.

PURPOSE

For the past fifteen years both my work and Federation responsibilities have centered almost exclusively around sewage sludge management. The projects I have been responsible for include planning, design, and operation of sludge facilities for numerous communities across the United States. Some of these are Boston, Philadelphia, Montgomery County, Maryland, Minneapolis-St.Paul, Oakland, Kansas City, Denver, and Hillsboro County (Tampa), Florida.

Working with these communities over the past 15 years, I have learned several valuable lessons in the area of sludge management that I hope to convey to you today. At the conclusion of my presentation I hope to be able to answer any questions you may have concerning sludge management from the perspective of an experienced sludge management practictioner.

LESSONS LEARNED

Aside from the specific points discussed below, there are a two themes that are common to virtually all sewage sludge management projects. The first is that nearly all sludge projects involve some degree of public controversy. This is true in every region of the country. Obtaining public acceptance by complying with applicable regulations, preparing credible sludge management plans, and educating the public about the benefits and risks of sludge, plays a crucial role in the successful implementation of any sludge management plan.

Secondly, the four laws of ecology authored by Barry Commoner in his book entitled The Closing Circle are as relevant to sludge management today as they were when published nearly 20 years ago. These laws are:

- Everything is connected to everything else.
- Everything must go somewhere.
- Nature knows best.
- There is no such thing as a free lunch.

In some fashion, each of the following issues relates to one or more of Mr. Commoner's laws of ecology.

Issue #1: Sludge represents a growing concern

The following facts about sewage sludge disposal practices, as provided by EPA, further illustrate Barry Commoner's point that "everything must go somewhere":

- 7 million metric tons (dry) produced annually
- 140-150 million metric tons (wet) produced annually
- 40-45% codisposed/mixed in municipal landfills
- 30% land-applied, or distributed and marketed
- 20% incinerated
- 6% disposed in ocean
- 1% disposed in sludge-only landfills

As mentioned, nearly 50 percent of current sludge production is landfilled. Faced with diminishing landfill capacity, communities that rely on landfills are being rapidly forced to find other means of disposal. In addition, due to urbanization occuring in and around wastewater treatment plants, the opportunities for non-landfilling utilization alternatives are also diminishing.

Further exacerbating this problem is our ever-increasing efficiency of pollutant removal from our wastewater. The cleaner our wastewater, the more sludge we generate. It is estimated that, due to improved treatment, sludge quantities will double by the year 2000.

Disappearance of disposal options coupled with increasing sludge quantities means that non-landfilling disposal options will have to accomodate three times the volume of sludge that they currently do.

Another less obvious concern is the lack of sludge management planning. Until recently, the ease of readily available disposal options such as landfills and storage lagoons, precluded the necessity for sludge management planning. As a result, when communities are faced with an imminent loss of their disposal options, with no plan to refer to, they are forced to implement expensive and perhaps environmentally less desirable interim disposal measures.

Issue #2: Most sludges are not hazardous wastes

A vast majority of the sludges produced by wastewater treatment plants in the United States are **not** classified as hazardous wastes. Not only is this a very common misconception on the part of the public, but it frequently presents a significant obstacle to public acceptance. This is not to say that sludges might not contain materials that could be hazardous, indeed they may. However, many of these hazardous elements are also present in many of the materials and foods that we come in contact with daily. Elements that by some are called heavy metals have actually been shown to be essential micro-nutrients by agronomists.

It is also true that pretreatment programs implemented by many municipalities across the United States have been responsible for dramatic improvements in sludge qualities. Cities such as Boston, Minneapolis, and Denver have all seen improvements in sludge quality that can be traced to pretreatment programs. This improved sludge quality can lead to wider range of disposal options available to a community. The fact that a vast majority of sludges are not considered hazardous is likely attributable to the pretreatment programs that regulate industrial discharges out of the sewer system.

Issue #3: No solutions are universally applicable

It is difficult to compare sludge management programs of different cities. Proper residuals management alternatives are dependent upon many site-specific factors, that vary from city to city. These factors include numerous and complex siting, environmental, and engineering considerations. What is appropriate for one city or region of the country may be totally inappropriate for another. For example, agricultural land application has been practiced by Denver since 1978.

However, the opportunity for this option in Boston is practically non-existent.

Issue #4: A limited number of disposal options exist

At first glance it may appear that there are a myriad of emerging and proven sludge management disposal options available to communities today. In reality, there are only five basic options available, with others being variations on the same theme. These five are: landfilling, land application, marketing and distribution, incineration and ash disposal, and ocean disposal. Further narrowing our options is the consideration that truly all paths of disposal eventually lead to the ground or the ocean. Obviously, both landfilling (sludge **disposal**) and the land application of sludge for agricultural purposes (sludge **utilization**) both result in sludge being put in or on the ground. Composting reduces pathogens and changes the characteristics of sludge so that it does not readily betray its origin. The ultimate disposal of the compost through marketing and distribution still requires application to the ground. Incineration and other thermal alternatives work to reduce the volume of material that requires disposal. However, these processes still produce a residual solid requiring utilization or disposal.

While there are many emerging technologies in the area of sludge management, all still produce residuals of some kind that require disposal. In addition, the utilization of these emerging technologies by the municipalities is difficult because of the risk that they face by investing many millions of dollars of their ratepayers money, with little or no assurance that the unproven technology can be used successfully.

U.S. EPA's policy on municipal sludge management, adopted in 1984, endorses the concept of beneficial use. WPCF supports this approach and, in fact, is currently cooperating with EPA in conducting a national awards program to recognize outstanding beneficial use projects. Section 405(g) of the Water Quality Act of 1987 authorized up to $5 million a year for programs "to promote the safe and beneficial management or use of sewage sludge." EPA requested funding for these programs in fiscal year 1988 and in a supplemental funding request for fiscal year 1987, but no monies were appropriated.

CONCLUSION

When managed properly, a good quality sludge can be an asset. Proper management begins with a thoughtful evaluation of all options in light of site-specific considerations.

Since virtually all sludge projects contain some element of public controversy, residuals management represents one of the most significant challenges facing environmental engineers, wastewater treatment plant operators and local officials today. These challenges will continue to grow as traditional disposal opportunities decrease and sludge volumes increase.

The biggest single obstacle to the implementation of a sludge program today is public acceptance. As with other waste disposal facility sitings, NIMBY -- or "Not In My BackYard" -- fears must be addressed through aggressive public education efforts. Further, it is important that we recognize the key role that well-founded sludge regulations play in obtaining public acceptance. The regulations' credibility forms the foundation of our public acceptance programs. And finally, Congress should appropriate monies for a beneficial uses grant program, as authorized by the Water Quality Act of 1987.

Thank you for your attention and I would be happy to answer any questions you may have at this time.

HEARINGS ON PROPOSED AMENDMENTS TO THE MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT WHICH WOULD BAR OCEAN DISPOSAL OF SLUDGE

Testimony for the Subcommittee on Water Resources
Committee on Public Works and Transportation

U.S. House of Representatives

Washington, D.C.
August 2, 1988

BY

Fred A. Harper, Chairman

Conference of Coastal Agencies

A Committee of the

Association of Metropolitan Sewerage Agencies

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Harper

Conference of Coastal Agencies
Recommended Changes to H.R. 4338

If the decision by Congress is to phase out ocean dumping as presently authorized by federal law under strict supervision of EPA, we suggest the following changes to HR 4338.

1. Deadlines: The proposed deadline of December 31, 1992 is unrealistic and impossible. The local operating agencies are required by state and federal statutes to prepare environmental assessment reports, hold public hearings on all phases of the disposal alternatives including financing, siting etc., and finally time for construction of the necessary facilities. December 31, 1996 is within the realm of possibility for most agencies if all goes smoothly. There should, however, be provisions to allow an agency the opportunity to demonstrate to EPA that, despite every effort and the expenditure of vast sums of money, the deadline simply could not be met and the Administrator should be authorized to grant additional time without penalties. (See pages 3&4)

2. Ocean User Fees and Penalties: The proposed interim user fees and penalties are counterproductive to the progress of phasing out ocean dumping. Imposing heavy and burdensome penalties on the agencies who have been in compliance with the current MPRSA statutes is an inappropriate action for Congress to take. We recommend the penalty provisions be eliminated as long as the agreed upon statutory schedule is adhered to (see page 4).

3. Permits for Use of Federal Lands: Long term sludge disposal sites are often impossible to obtain by local municipal jurisdictions. We recommend legislation which would provide a permit process for use of suitable federal lands if a local agency can demonstrate its vigorous effort has failed to produce a disposal site after evaluating every land and air alternative (see page 5).

Harper

Mr. Chairman and Members of the Subcommittee:

My name is Fred A. Harper. I am the Chairman of the Executive Committee of the Conference of Coastal Agencies (CCA). For many years, I was the General Manager of the Orange County (California) Sanitation Districts, with overall responsibility for the management and operation of the third largest municipal waste treatment system on the West Coast. I appreciate the opportunity to testify before the Subcommittee on behalf of CCA on a matter of considerable importance to our members.

CCA is a committee of the Association of Metropolitan Sewerage Agencies (AMSA), an association of over 100 major municipal sewerage agencies, whose members serve over 70 million people in the nation's major metropolitan areas. CCA was established seven years ago to serve as its coastal members, to present a consolidated position to Congress on legislative issues and to work with the Executive Branch by sharing our experiences, expertise and efforts with those interested federal agencies.

When the Merchant Marine and Fisheries Committee was considering amendments to the Marine Protection, Research and Sanctuaries Act in February, CCA submitted a statement for the hearing record. It is a detailed and lengthy statement which sets forth our position on disposing of sludge in the ocean. We attempted to make the point that there is no scientific and technical foundation for legislation which would wipe out one of only three media options available to sewerage agencies for the disposal of any waste. Although, as we understand it, the purpose of this hearing is not necessarily to reopen the entire question of whether the ocean should be barred as a sludge disposal option, we believe that it is important that the Subcommittee and the House membership in general be informed about our position and we respectfully request that the CCA statement submitted to the Merchant Marine and Fisheries Committee, together with a two page summary of the full statement be incorporated into the record of this hearing, Mr. Chairman.

Additionally, I would direct your attention to the statement submitted to the Merchant Marine and Fisheries Committee by Dr. R. Lawrence Swanson, Director of the Waste Management Institute of the State University of New York at Stony Brook, Long Island, New York. Dr. Swanson is a highly respected scientist who prior to taking over the leadership of the Marine Research Institute was for many years the Director of the Office of Marine Pollution Assessment of the National Oceanic and Atmospheric Administration. His testimony before the Merchant Marine and Fisheries Committee was the only scientific testimony by an objective scientist. After indicating that there can and should be significant improvements in techniques used in ocean disposal of sludge, Dr. Swanson summarized his position in the following paragraphs:

> "Waste disposal in any form is an extremely volatile issue. Those of us who live by the ocean are anxious to implement land-based alternatives. Given the complex nature and volumes of society's wastes, there is really no single acceptable solution. We are unacceptably degrading the ocean, the air, the land and groundwater or taking up valuable and diminishing space.
>
> "Until we can significantly improve the quality of wastes, reduce their volumes, and improve the technologies available to deal with them, we must explore as many disposal options as possible. For each community and class of waste we must be able to find the technology that minimizes environmental risk at a price we can afford.
>
> "In this context the oceans should remain a media of consideration."

Mr. Chairman I respectfully request that Dr. Swanson's full statement be made a part of the record of this hearing.

I should like to point out that the Congressional Office of Technology Assessment completed its study of ocean disposal last year in a report to Congress entitled "Wastes in Marine Environment". The study, commissioned by the Merchant Marine and Fisheries Committee, found that all possible alternatives should be considered including ocean disposal and that sewage sludge "probably can be dumped in the open ocean if levels of toxic pollutants in the wastes are low, without causing significant long-term impacts." Report at p. 34. Similar conclusions have been reached by scientific studies referred to and identified in our February statement to the Merchant Marine and Fisheries Committee.

Having indicated our strong and, I believe, technically persuasive objection to the basic thrust of the Merchant Marine and Fisheries passed Bill, I would like to address some of the specifics in that Bill. Our assumption is that in one form or another, there will be legislation recommended by the House Public Works and Transportation Committee somewhat along the lines of the Bill that was re-referred to this Committee from Merchant Marine and Fisheries.

A DEADLINE FOR ENDING "OCEAN DUMPING"

H.R. 4338, as reported by the Merchant Marine and Fisheries Committee would prohibit ocean disposal of sewage sludge after December 31, 1992. In my view, that is simply an unrealistic and unachievable goal. It is less than three and a half years from today and our experience in Orange County in attempting to find land-based options convinces me that there is no way that all of the sludge generated by the New York and New Jersey agencies can be diverted to other options in that relatively short period of time. Finding alternative disposal sites, producing the necessary Environmental Impact Studies, securing regulatory approvals at federal, state and local levels is a time consuming process that can easily take seven or eight years even before construction of facilities can begin.

I would also note that there is no, nor should there be any, implication that what those agencies are doing has been a violation of law. They accepted the political judgment that the New York Bight had to be abandoned and moved to the 106 mile site despite the significantly increased cost of transporting sludge that distance. So I think it is important that we start off recognizing that, despite the desire to have a policy change implemented in a period of time that would be preferable, the 1992 date is so unrealistic as to be virtually impossible of accomplishment by the agencies presently using the ocean. It seems to me that Congress has an obligation in enacting legislation to legislate realistic and achievable requirements. To do otherwise, has the effect of putting local governmental units in the untenable position of being violators of a law which by any reasonable forecast cannot be accomplished in the time set by the Bill reported from the Merchant Marine and Fisheries Committee.

I can assure you, on the basis of our experiences in Orange County, that securing land based options remains the most formidable task facing sewerage agencies across the country.

In Southern California, a 6-year study to develop a comprehensive sludge management plan for the Los Angeles and Orange County metropolitan area, the "LA/OMA" study, was completed in 1980, but public opposition to environmentally sound land alternatives made a shambles of the whole exercise. As a result of LA/OMA's "looking at" possible soil amendment operations in the California deserts to the east, several counties acted to discourage the "importation" of sewage sludge into their jurisdictions.

A few years ago, Orange County held a series of public hearings on alternative sites for land composting of its sludge. At one hearing alone, over 700 people turned out, all of whom appeared to be totally opposed to anything that might be proposed on land. Orange County today has not secured a site for long term disposal. These same pressures exist, to a greater or lesser extent, everywhere in this country. We call it the NIMBY syndrome - "Not in my back yard".

It is my understanding that the New Jersey and New York agencies are currently engaged in negotiations with Region II of EPA to develop workable schedules for terminating their ocean disposal of sludge. If, as is assumed, the Congress does decide that ocean disposal of sludge shall be terminated, the better course is to require those agencies to reach agreement with EPA on an achievable schedule. If, however, Congress concludes that it is absolutely essential to include a deadline, applicable to all agencies currently using the ocean, it should not be any earlier than the end of 1996. That is a long time in the future, but the task of finding acceptable land based options for New York City will most assuredly take that long.

USER FEES AND PENALTIES

When the concept of user fees for ocean disposal of sludge was first raised a number of years ago, CCA testified that it supported the idea, so long as the user fees were limited to the actual costs associated with the federal government's role in accomplishing ocean disposal. We included within that category the expense of designating sites and of monitoring those sites, but strongly resisted the notion of using such user fees as a penalty to discourage or preclude the use of the ocean at the designated dumping sites. I do not know whether we are the only group that has ever voluntarily supported user charges on our own activities, but it made sense to us and that was our position.

It does not however make sense to legislate a totally unrealistic deadline and then impose steep dollar penalties on local governmental agencies that fail to meet such a deadline. New York City indicates that the $5,000 per dry ton penalty could cost the city as much as $125 to $175 million each year. The Merchant Marine and Fisheries version of the Bill provides that 85% of that amount could, under appropriate circumstances, be used to attempt to find land based options. But why should a local governmental agency be required to put its taxpayers' and ratepayers' money into a fund administered by somebody else where they are at the mercy of a bureaucratic determination as to whether they are properly using their own funds.

Our member agencies are now and have been for years in the trenches cleaning up the nation's waters. It is most disconcerting to be subjected to a meanness of spirit which implies that what they are doing is bad and they should therefore be punished. If Congress chooses to change the MPRSA, so be it. But to impose heavy and burdensome penalties on the agencies who have been in compliance with the law strikes us as an inappropriate action for Congress to take. Accordingly, we recommend that the penalty provisions of H.R. 4338 be eliminated.

FEDERAL LANDS AS "LAST RESORT" DISPOSAL SITES

Sludge is a product of success. We could eliminate our national sludge disposal problems by simply shutting down all of the wastewater treatment plants in this country. That is not what the nation wants done nor is it what should be done.

Nevertheless, the toughest problem that local agency managers face is the disposal of sludge. EPA has been attempting to issue general sludge regulations since 1972 and has not yet done so. The reason is that the problem is increasingly difficult and frustrating. Landfills are rapidly being used up and the willingness of a community to take another community's sludge simply doesn't exit any more. Incinerating sludge may be possible in some areas of the country but ever increasing air quality regulations rule out burning for most communities.

The options are limited. Sludge can be put on the land, it can be incinerated or it can be disposed of in oceans. No one of those options is terribly attractive. In our view, each agency should carefully evaluate all of the options available to it and should choose that which is least environmentally detrimental.

Closing the ocean as an option is a negative act. We recommend that the Committee consider a positive approach that will assist local government agencies by providing that Federal lands be a depository of last resort. According to the Department of the Interior 32% of all U.S. lands are in Federal ownership. Any local sewerage agency that can demonstrate that after vigorous effort every land or air alternative it has pursued has failed to produce a disposal site should be provided a permit to use Federal lands in accordance with conditions and terms specified by EPA and the Federal agency that controls the lands.

If the decision by Congress is to eliminate the ocean as an alternative, fairness dictates that the agencies that have been using the ocean be given adequate time to accomplish the turnaround and that it do so without being labeled a lawbreaker and heavily fined for its activities. In addition, the federal government should help by making suitable federal lands available for disposal to any local agency if there are no alternatives.

Thank you Mr. Chairman for the opportunity to express our views and I will of course be pleased to respond to any questions that the Subcommittee members may have.

OVERSIGHT HEARINGS ON COASTAL POLLUTION

Statement for the
Subcommittees on Oceanography and Fisheries, Wildlife
Conservation and the Environment
Committee on Merchant Marine and Fisheries

U. S. House of Representatives
Washington, D.C.
February 23, 1988

BY

Fred A. Harper, Chairman

Conference of Coastal Agencies

A Committee of the

Association of Metropolitan Sewerage Agencies

1156 - 15th Street, N.W., Suite 1100

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February 23, 1988

SUMMARY OF THE POSITION OF THE CONFERENCE OF COASTAL AGENCIES

The Conference on Coastal Agencies opposes the Hughes Amendment for the following reasons:

1. There are only 3 media for disposal of anything: land air, and water. The Hughes Amendment would remove one of these three options.

2. There is an overwhelming scientific consensus that a multi-media approach to sludge management is necessary. The 1987 Office of Technology Assessment Report, Wastes in Marine Environments, confirms this consensus.

3. Each area of the country has its own unique problems and the quality of sludge varies from community to community. The Hughes Amendment would impair our ability to adopt a multi-media approach to sludge management and restrict our ability to find the best possible solution for each community. It could result in communities being forced to dispose of sludge in ways that are less environmentally sound.

4. The existing Marine Protection, Research and Sanctuaries Act and EPA implementing regulations provide adequate protection. A permit for ocean disposal of sludge will only be given by EPA when there are no other feasible alternative disposal options.

5. Scientific evidence shows that ocean disposal of municipal sludge can be accomplished in ways that do not degrade the environment or contribute to coastal pollution. A ban on ocean disposal of municipal sludge is not supported by the weight of the scientific evidence.

6. Scientific evidence shows that the recent pollution and floating garbage seen on our New Jersey and New York Beaches is not caused by municipal sludge which does not contain floatable materials. Ocean sludge disposal is not responsible for this problem, nor would the Hughes Amendment have any affect on it.

7. Research carried out over the last ten years shows that under certain circumstances municipal sludge can actually benefit the marine environment by providing needed organic nutrients. The recent OTA report "Waste in Marine Environments" suggests "that the use of several carefully selected sites is preferable to the us of only one or two dumpsites to reduce the input of

pollutants at any one site." We support continued research in this area based on the premise that the more scientific knowledge we have the better and more environmentally sound will be our decision making in this critical area. The Hughes Amendment would cause research in this area to cease.

8. If the Hughes Amendment is enacted, Congress should (1) establish a final date that will enable local sewerage agencies adequate time to secure alternative disposal methods and required sites and (2) provide by statute that any such agencies which, after diligent effort cannot find a usable site or sites be permitted to use Federal lands as a "depository of last resort" (32% of all U.S. lands are owned by the Federal Government).

The Conference of Coastal Agencies (CCA), appreciates the opportunity to submit this statement for the record, of the Subcommittees on Oceanography and Fisheries, Wildlife Conservation and the Environment in their Oversight Hearings on Coastal Pollution.

CCA is a committee of the Association of Metropolitan Sewerage Agencies (AMSA), an association of over 100 major municipal sewerage agencies, whose members serve over 70 million people in the nation's major metropolitan areas. CCA was established seven years ago to serve as a clearinghouse for its members, to present a consolidated position to Congress on legislative issues and to work with the Executive Branch by sharing our experiences, expertise and efforts with those interested federal agencies.

CCA's members represent many of this country's major metropolitan areas. From the Northeast, our members are: The South Essex Sewerage District, Massachusetts; New York City's Department of Environmental Protection, Nassau and Westchester Counties, New York; and the Middlesex County Utilities Authority, New Jersey. In the Middle Atlantic area Baltimore, Maryland, and Hampton Roads Sanitation District, Virginia. California members are San Diego, Encina, Orange County, the City of Los Angeles, and the City and County of San Franciso. In the Northwest are the Public Works Utility Services of Tacoma, Washington and the Municipality of Anchorage, Alaska.

Although our parent organization, AMSA, has had a policy supporting an ocean option for sewage sludge disposal for a number of years, we formed CCA in 1981 to present the facts to the public in general, the citizens in the areas we serve, the Congress and the Executive Branch that the ocean is one possible method of handling sludge that should be carefully explored in same fashion that we examine the use of sludge on land for fertilizing purposes and disposal in landfills, as well as incineration.

Therefore, we are opposed to the Hughes Amendment to HR 3674 which would completely prohibit ocean disposal of sewage sludge after 1991 regardless of this option's relative risks to human health and the total environment when compared to land or air disposal options.

No one can say with certainty that the use of the ocean is acceptable in all cases or is the best alternative. Rather, what we hope to establish is a well conceived program for independently assessing the proper type of sludge that can safely be disposed of in the ocean and the safest and most environmentally acceptable methods of sludge disposal. We have a great deal to learn about the effects of ocean currents, depth and temperature of the receiving water, and other physical factors that in our view will help us as a nation determine the usefulness and acceptability of the ocean for assimilating treated municipal sludges.

We believe there are some substantial misperceptions regarding ocean disposal of sewage sludge that merit attention and correction. First, this is a national problem -- it is not a "New York City" or "New Jersey" problem. Our member agencies are public bodies whose principal function is to protect public health and the environment. It is our position that sewage sludge, an unavoidable product of the wastewater treatment process that must go somewhere, should be disposed of in the medium, and in the manner, in which risks to human health and the environment will be minimized.

The suggestion has been made by some participants in the debate over the use of the ocean for sludge that sewerage agencies will always take the "easy" and "cheapest" alternative. That really does not do us justice. We must live with the people we serve and we are dedicated to achieving the best possible mix of alternative strategies for handling waste. Just as the ocean should not be used for sludge disposal simply because it may be the most economical method, so it should not be barred just because it may be the most economical method.

Adding to the difficulty and confusion is the fact that sludge management is affected by five federal laws: the Clean Water Act, the Resource Conservation and Recovery Act, the Toxic

Substances Control Act, the Clean Air Act and the Marine Protection, Research Sanctuaries Act (MPRSA). Thus, one medium is often protected at the expense of others.

Since 1972 the U.S. Environmental Protection Agency (EPA) has had the assignment (§405 of the Clean Water Act) of promulgating a sludge management program. As of the day of this hearing, no such program or regulations implementing it have been developed. Handling sludge is admittedly a difficult problem, but somewhat casually eliminating one of the three basic options--land, air, ocean--is not a solution, nor would such a decision contribute to a reasonable solution.

SEWAGE SLUDGE -- THE OPTIONS

Our members are in the unenviable position of having to find a place for something that, in general, nobody wants. As a result of Congress' 1972 mandate to achieve secondary treatment of waste water, the volume of sludge produced annually in this country continues to grow at a rate far outstripping population growth. A 1987 study by the Office of Technology Assessment (OTA) estimated that by the year 2,000, total sludge production could increase to over 10 million dry metric tons. (28) In 1977, the National Academy of Sciences/National Research Council, in its report entitled, "Multi-medium Management of Municipal Sludge", criticized the Congress' medium-by-medium approach to waste management, and singled out the then-existing policy of the

U.S. Environmental Protection Agency (EPA) against any ocean disposal of sludge after 1981, as a particularly irrational waste management decision. In 1981, the National Advisory Committee on Oceans and Atmosphere (NACOA), criticized our nation's pattern of environmental regulation as one which simply "chases" man's wastes to the medium of least regulation, rather than the medium which would pose the least human health risk and environmental degradation. The NACOA report, "The Role of the Ocean in a Waste Management Strategy," also criticized EPA's absolute ban on ocean disposal of sewage sludge after 1981, and in fact specifically recommended that ocean disposal of sewage sludge, both by barge (dumping) and by pipeline, be allowed to continue so long as no unreasonable degradation, or human health risk occurred.

Most recently, OTA stated in its 1987 Report, "Wastes in Marine Environments" that a multi-media approach to sludge management was a "necessary policy direction" and that it is "increasingly essential that marine waste disposal options be viewed within the context of this general policy debate." (28 p.49.) This study, commissioned by the Merchant Marine and Fisheries and Public Works and Transportation Committees clearly found that all possible alternatives should be considered including ocean disposal and that sewage sludge "probably can be dumped in the open ocean if levels of toxic pollutants in the wastes are low, without causing significant long-term impacts." (28 p. 34.) In fact, evidence suggests that the risks to human health from ocean disposal are less than those from land application. (28 p. 225.)

The Hughes Amendment flies in the face of the recommendations of the OTA study, and would totally close off the ocean as an option. Such a policy, we believe, is an emotional reaction to a problem without proper consideration of scientific and ecological data.

There is no single best method for disposing of or utilizing sewage sludge. Just as every region of the country has its unique hydrological, meteorological, and oceanographic characteristics, every sewage sludge has a unique composition of natural organic material, nutrients, metals, synthetic organic, and petroleum hydrocarbons.

Where sludges are relatively free of such contaminants, such as is the case in the sludge produced here in Washington, D.C., logic tells us that the sludge should be utilized for value as a soil amendment, or as fertilizer. That logic, however, has been all but lost on the general public, which tends to view sludge as a "toxic" waste. Public pressure has made it all but impossible to site a land application or composting facility, or even a landfill, for the utilization or disposal of sewage sludge today.

In southern California, a 6-year study to develop a comprehensive sludge management plan for the Los Angeles and Orange County metropolitan area, the "LA/OMA" study, was recently completed, but public opposition to environmentally sound land alternatives made a shambles of the whole exercise. As a result of LA/OMA's "looking at" possible soil amendment operations in the California deserts to the east, several counties have passed ordinances banning the "importation" of Los Angeles' sewage sludge into their jurisdictions.

A few years ago, Orange County held a series of public hearings on alternative sites for land composting of its sludge. At one hearing alone, over 700 people turned out, all of whom appeared to be totally opposed to anything that might be proposed on land. These same pressures exist, to a greater or lesser extent, everywhere you go in this country.

About four years ago, Montgomery County, Maryland entered into a contract with a rural county in Ohio to truck its relatively clean sludge to be put in the county's landfills. The Ohio officials deemed it to be a most satisfactory arrangement, but were forced to cancel the contract when news of it reached the people in their county who made it clear that they did not want somebody else's sludge.

Each region of the country also has its own set of unique problems and circumstances. What is the best municipal sludge management plan for St. Louis may not work at all in New York City and vice versa. The type of land available, the existing land use patterns, and existing air pollution problems, along with the underlying physical processes governing air and water circulation, have to be considered in determining which municipal sludge management option is the best in any given local situation. In addition, the quality of municipal sludge is not uniform. Obviously those municipalities with greater industrial input into their treatment systems have municipal sludges that contain higher levels of synthetic organic chemicals and heavy metals.

These agencies are already required by the Clean Water Act to develop pre-treatment programs which are progressively reducing these constituents to lower and lower levels. Although implementation of pre-treatment programs can be difficult and expensive, we are totally committed to the success of such programs and we are making substantial progress. Many of our member municipalities have seen dramatic results in the reduction of heavy metals in municipal sludges as a result of our work with the industrial companies that operate in our areas. While industrial pre-treatment is of fundamental importance in controlling the presence of undesirable elements in our municipal wastewater treatment systems, even the fullest application of the pre-treatment program will not totally eliminate these materials.

We believe that, in the future if we are to progress beyond the industrial pre-treatment program in minimizing contaminant concentrations in our municipal sludges, it will be necessary to control the composition and use of the huge variety of products sold in the market place. We are strongly committed to taking whatever steps are necessary to improve the quality of our municipal sludges so that no matter how they are used, this use can be beneficial without the concern that trace contaminants may negate some of that benefit.

There are legitimate concerns about the effect of placing certain sludges on agricultural lands where some elements in the sludge can enter the food chain and pose potential problems for public health and safety; and we are properly concerned that our ground water system not be contaminated. Similarly, the incineration of sludge is not free from potential health and environmental consequences that bear the most careful attention and consideration. In non-attainment areas, sludge incineration is simply not allowed. Incineration has some obvious health and environmental drawbacks, which must be weighed against those of land and ocean-based alternatives. The incineration process itself produces as residue, approximately one-third of the original dry solids, that is concentrated in heavy metals, and which may have to be handled in some municipalities as a "hazardous" waste. When incinerator temperatures are high enough to destroy synthetic organic compounds such as polychlorinated biphenyls (PCB's), they also volatilize certain metals, particularly mercury and cadmium, and pump these metals into the atmosphere.

Regardless of what we call it, finding a resting place for sewage sludge is "disposal" of one of the residues of our society. As a fertilizer, sludge costs far more to dry and to prepare than fertilizers from other sources. As an energy source, the major sewerage authorities are already recovering as much energy from sludge as can economically be produced, by anaerobic digestion of the sludge, a process that produces methane gas. To dry digested sludge to the point where it can be used as fuel, or more energy can be recovered, is an energy-consumptive process. So, when we talk about "recycling" or "resource recovery" with sewage sludge, we are really talking about a very expensive way to do something that could be done better, and cheaper by other processes. With our methane recovery systems, we think we are squeezing the last btu of energy out of sewage sludge that can be justified.

SLUDGE IN THE OCEAN - EFFECTS

NACOA reviewed the effects of sewage sludge disposal in the marine environment in its 1981 report. (25) For the past ten years, the Southern California Coastal Water Research Project (SCCWRP) has been studying the effects of sewage effluent and solids on the marine ecosystem of the Southern California Bight. There is also a paper, by Dr. Larry Swanson and the staff of NOAA's Office of Marine Pollution Assessment and the Ocean Dumping Office, on the effects of sewage sludge disposal in the New York Bight Apex, comparing those effects with those at other proposed ocean disposal sites. (26) Orange County Sanitation Districts jointly funded, with NOAA, a research project at the California Institute of Technology that addresses the need for additional monitoring and evaluation of sewage solids in the Southern California Bight that would result from a deep ocean outfall that has been authorized by the Clean Water Act Amendments of 1987 as an experiment to dispose of sludge in a deep (approximately 1,000 feet) marine basin seven or eight miles from shore.

A consensus exists within the scientific community that the environmental problems encountered in ocean disposal are no more significant than those encountered in land-based alternatives, and often are considerably less. For example, the marine science community generally agrees that while cadmium is a potentially severe problem in land-based disposal methods utilizing incineration or spreading of sludge on farm lands, it is considerably less of a problem in the oceans because the material is bound to ocean sediments.

The view has been expressed that if the MPRSA is not amended, ocean disposal will always be selected as a method of choice since it is generally economically preferable to land-based disposal. However, the MPRSA, as currently written and interpreted by EPA, precludes a determination from being made on that single ground. The Administrator, in determining whether to grant a permit, may consider economics only as one factor among many. EPA cannot issue a permit for disposal of sewage sludge in the ocean simply because it is less expensive, if the environmental and human health consequences of ocean disposal are clearly more serious than those of alternative disposal methods.

In 1977, the MPRSA was amended to institute a statutory deadline of December 31, 1981, beyond which the Administrator could not issue permits for ocean dumping of sewage sludge which failed to meet the unreasonable degradation standard. This amendment was adopted in the wake of environmental events in the New York Bight during 1976, including a major anoxia (depletion of oxygen) and the closing of beaches due to the wash-up of floatable materials which included materials derived from sewage effluent. Little was known in 1977 about the causes of these incidents, but it was thought in Congress that if sewage sludge were responsible, then it surely must fail the unreasonable degradation standard, and that the disposal of such sludge must cease by 1982.

The fears that sewage sludge disposal may have contributed to the incidents of 1976 have since been refuted by solid evidence. This evidence demonstrates that the environmental effects of ocean disposal of sewage sludge are minimal and that sewage sludge did not contribute to any of the incidents in 1976. (27)

Nor was sewage sludge a primary contributor to the fouling of New Jersey and New York beaches during the summer of 1987 by garbage and floating materials, since sludge does not contain raw garbage or floatables.

THE MPRSA STANDARD WORKS

The MPRSA's "unreasonable degradation" standard provides EPA with all the authority it needs to prohibit ocean disposal of sludge where it is considered to be harmful to the environment. An illustration of the effectiveness of this law is EPA's recent decision regarding the new designation of the Deepwater Municipal Sludge Dump Site (DMSDS) 135 nautical miles offshore and the closing of the New York Bight 12 mile site.

Under current law, before EPA grants a permit, it must consider numerous factors including the effect of the disposal on human health and welfare, economics, aesthetic and recreational values, and whether there exist appropriate locations and methods of disposal or recycling, including land-based alternatives and the effect that use of alternate locations or methods would have on the public interest. MPRSA Section 102.

EPA, by regulation, requires all permit applicants to provide an evaluation of short and long term alternative disposal methods, their availability and environmental impact. Other methods that must be evaluated are treatment and recycling and other disposal alternatives such as landfill, well injection, incineration and land spreading. See 40 CFR §221.1 (j).

Thus there is already a workable system in place which requires that alternative methods of treatment or disposal be considered before a permit for ocean disposal can be issued. This scheme is more than adequate to assure that human health and the environment are protected and that ocean disposal be allowed only when it is the most appropriate under the circumstances of each specific case. We do not believe any justification exists for doing away with this carefully balanced approach and substituting a system which would prohibit the ocean from even being considered in the weighing of factors and the selection of the best disposal alternative.

NEW SCIENTIFIC INFORMATION

Since 1977 there has been a sustained effort within the marine science community to assess available information and to carry out research on the potential impacts of sewage sludge disposal in the ocean.

The OTA study is a useful addition to this body of knowledge and brings together information and data from a vast number of sources. This study reflects the consensus in the scientific community that "relatively uncontaminated sludge... could probably be deposited in open ocean waters without causing severe impacts, as long as dispersal and appropriate disposal technologies were used." (Wastes in Marine Environments, p. 229) The study concludes that "there would be little rationale to eliminate dumping as a disposal option."

Some highlights of other studies are:

1. NOAA published a report which showed that the 1976 anoxia in the New York Bight was a natural event caused by unusual climatic conditions. If sewage sludge, put in the New York Bight had any role in the oxygen depletion event, it was an insignificant one at most. (26)

2. NOAA published a report which shows that beach pollution in the New York-New Jersey area is derived from land-based sources, not sewage sludge from ocean disposal. In fact, sludge deposited in the ocean does not contain any substantial quantities of floatable materials. (26, 27)

3. NACOA published its report, referred to earlier, following an exhaustive two-year appraisal of information related to ocean disposal of waste materials. NACOA's report concluded that the human health and environmental impacts of placing sewage sludge in the ocean are small, and that ocean disposal of sewage sludge should be allowed when cross-media comparisons show this to be the most desirable option. (25)

4. Extensive monitoring and research studies of ocean disposal sites, including more than a dozen sites around the United Kingdom, and of marine pipeline discharges of sewage sludge, especially in Southern California, have confirmed that there are no adverse impacts on human health, and that environmental impacts are minimal when digested sludge is ocean-disposed, even in large quantities. (24, and studies cited therein)

5. In its announcement of the final designation of the DMSDS as a site for ocean disposal of municipal sludge (49 Federal Register 19008), EPA stated:

> "Based on its analysis of the EIS and comments thereon, public hearing records, comments on the proposed rulemaking, EPA/NOAA documents containing the results of scientific studies of dumping activities at the 106-Mile Site, and other documentation contained in the public record, EPA concludes that the ... [disposal] site ... for municipal sludges [is] in compliance with all statutory and regulatory criteria for site designation." (29)

This conclusion was reached in view of EPA's evaluation of the potential for environmental effects related to municipal sludge disposal. In its announcement of the final designation of the DMSDS as a site for ocean disposal of municipal sludge (49 Federal Register 19012), EPA stated:

> "EPA believes that it has adequate data and analysis to conclude that municipal sewage sludge disposal at the 106-Mile Site will not adversely affect the marine environment." (29)

EPA also presented the rationale behind this conclusion. In its announcement of the final designation of the DMSDS as a site for ocean disposal of municipal sludge (49 Federal Register 19007), EPA stated:

> "Previous monitoring activities at the 106-Mile Site have indicated that ocean dumped wastes undergo rapid initial dilution followed by extensive dispersion. Thus temporary perturbations in water quality can be expected to return to ambient levels before reaching any beach, shoreline, or known geographically limited fishery or shellfishery." (29)

6. The studies referenced above indicate that, although at some sites the biological populations are degraded in small areas of the ocean floor at or near the discharge location, the net effect of ocean disposal of sludge can be beneficial. Over a much wider area, the biological populations are considerably

enhanced. At many sites even small areas of degradation are not found. Scientific opinion is now moving towards the view that *sewage sludge can be used beneficially to enhance ocean* productivity if distribution into the marine environment is properly managed. (24, and studies cited therein)

7. Several studies of ocean disposal sites and pipeline discharges of sewage and sewage sludge, where discharge has been discontinued, have shown that natural ecological conditions are restored within a few years or less. The impacts of ocean disposal of sludge are, therefore, readily reversible and if a site were to become unacceptably degraded, removal of the inputs would restore the site quickly.

BENEFICIAL USES OF SLUDGE

Traditionally sludge has been regarded as a waste product that must be disposed of in a way that will minimize adverse effects. However, recent scientific evidence and studies demonstrate that municipal sludge, if properly managed, can actually enhance some marine environments.

The ocean environment on the offshore continental shelf can be characterized as having low productivity due to the limited availability of macro and micro nutrients. Wastewater solids when introduced into the marine environment in a controlled manner can supply these nutrients and enhance productivity. However, current and past practices have not recognized the beneficial application of wastewater solids in the ocean, viewing it only as a harmful substance which must be properly disposed. As a consequence, there is only a limited amount of information regarding management alternatives designed to optimize recycling of wastewater-borne nutrients in the ocean. There is, however, sufficient data available to show that when managed properly, the application of wastewater solids in the ocean environment can be beneficial. Attached is a recent (1985) article, "Beneficial Use of Municipal Sludge in the Ocean", by Dr. Douglas Segar, et al which provides a good summary of the state of scientific knowledge in the field.

Enhancement of the continental shelf productivity can occur through two mechanisms. The first is by increasing available nutrients in the water column and thereby supporting increased planktonic biomass. (1) However, there is virtually no data available to determine the significance of enhanced planktonic productivity on the offshore continental shelf.

The second mechanism involves the benthic environment. Wastewater solids contain sufficient quantities of organic matter which provide food for benthic organisms. Shelf sediments do not optimally support benthic organisms because they are generally low in organic content. Therefore, the addition of organic matter to sediments will increase the productivity and diversity of the benthic organisms. The enhancement of the benthic community as a result of the application of wastewater solids in the shelf area has been studied extensively. (2,3,4,5,6,7) In many instances, zones existed around the sites studied where biological productivity was enhanced. This zone of enhancement was present even around those areas where large quantities of wastewater solids have been deposited over long periods of time. Unfortunately, no studies have been designed to determine management strategies to optimize this enhancement.

The increased productivity and diversity of the benthic community provides food for higher levels of the marine food chain. Many marine animals feed on benthic organisms which in turn provide food for larger predatory fish. Increased quantities and diversity of species have been observed in the zone of enhanced benthic communities around wastewater solids application areas. (8,9,10,11,12,13) Thus, the potential exists for enhancing offshore fishing by way of recycling wastewater-borne nutrients to the ocean.

Bioaccumulation has been cited as a negative factor in the recycling of wastewater solids in the ocean. This concern, however, is not significantly different from that related to land application, a potential problem which has been mitigated by proper management controls. Development of similar controls is feasible for recycle through ocean application. Studies around various application sites which emphasize disposal rather than recycle operations have shown conflicting results. (14, 15,16,17) None of the studies, however, have presented evidence indicating that significant problems exist. (14,15,16,17) Further studies are needed to develop management strategies which will ensure that no bioaccumulation problems occur.

Public health concerns with respect to ocean application do not appear to pose significant problems. The scientific literature indicates that the ocean environment is toxic to many pathogenic organisms. Studies have shown the presence of a strong viral inactivation mechanism in sea water which limits survival of viruses to less than three days. (18,19) Therefore, migration of viruses from the site of wastewater solids application should not occur. Studies around active sites such as the New York Bight and Delaware Bay have shown that wastewater solids application increases bacterial levels in the immediate vicinity of the site for only short periods after application. (14,20,21,22,23)

In summary, the literature supports beneficial recycling of wastewater solids-borne nutrients in the ocean. This is particularly significant in light of the fact that the data were derived from projects which emphasized disposal rather than recycling operations. There is considerable need for studies designed to develop general management strategies for recycling operations. Further research is needed to:

1. Determine application rates and frequency of application required for optimizing biological productivity.
2. Develop guidelines on acceptable wastewater solids quality for heavy metals and other contaminants.
3. Develop guidelines pertaining to site life and other control strategies for eliminating problems associated with heavy metals and pesticides.

Despite substantial improvements in our knowledge of the effects of municipal sludge disposal in the ocean that have taken place during the past several years, certain gaps exist in our knowledge, particularly with regard to information necessary to utilize municipal sludge in the ocean in the most beneficial manner. CCA is committed to improving our scientific data base concerning ocean application of municipal sludge. To this end, we have worked closely with the Federal agencies responsible for the research and monitoring efforts that are necessary to improve our understanding and intend to continue to do so.

CONCLUSION

It is CCA's position that municipal sludge should be managed to minimize risks to human health and environmental harm and to do so within acceptable economic limits. It is not possible to single out any medium whether it be the atmosphere, the ocean, or the land, and to state flatly that the human health and environmental risks associated with municipal sludge management in that medium will always be greater than any other alternative. In considering sludge management, it is necessary to recognize a concept to which we have already referred: there are potential benefits from the wise use of this material both on the land and in the oceans.

Up to this time, we have considered municipal sludge management through putting it in the ocean to be strictly a matter of disposal. However, in many sections of the country we are already deriving benefits from municipal sludge's ability to enhance productivity on the land. If the wise and prudent use of the nutrients in municipal sludge produces benefits on land, benefits to our marine life can also result from the prudent application of municipal sludge to the ocean. CCA believes that the beneficial use of municipal sludge through appropriate application to the oceans is a goal towards which we must work, since in many parts of our nation such beneficial use may provide greater benefit to our society than any other practicable management alternative. Attached to this statement is a scientific paper which presents additional scientific analysis to support this conclusion and we ask that this paper be included as part of the record of this hearing.

We regret that this statement is so long. However, the Subcommittees are faced with fundamentally different approaches to the role of the ocean as an option for management of municipal sludges. We believe that the decisions you make will determine not only the future of waste management in the ocean, but also the future of the concept of multi-media management of wastes. We urge you to consider these matters very thoughtfully since the Merchant Marine and Fisheries Committee has a special responsibility for protecting and managing the oceans, but it also has a larger responsibility to ensure that the total environment, including the ocean, is managed and protected as wisely and effectively as our knowledge permits.

We believe that the on-going regulatory activities within EPA will lead to technically justifiable and correct management decisions with regard to ocean management of municipal wastes. We believe that the Marine Protection, Research and Sanctuaries Act, in its present form, is a carefully conceived and forward-looking piece of legislation which can ensure that these ends will be achieved. It has taken us over a decade under the existing formulation of the MPRSA to come to the position where careful, informed decisions can be made that ensure not only protection of the ocean but of the environment as a whole. It would indeed be unfortunate if major changes such as an outright ban on ocean disposal of municipal sludge were to jeopardize that progress, particularly in view of the fact that we are finally beginning to amass sufficient scientific knowledge to enable us to manage sludge in a manner that would benefit the marine environment.

For all of the foregoing reasons, we urge that the Hughes Amendment be defeated.

If, however, it is the decision of the Committee to adopt the Hughes Amendment, we urge that careful attention be given to the December 31, 1991, date. Four years sounds like a long time and it is. But finding alternative disposal sites, producing the necessary Environmental Impact Studies, securing regulatory approvals at Federal, state and local levels is a process that can take up to seven or eight years. EPA officials themselves concede that any EPA-funded project is expected to require ten years from start to final approval.

Lest there be any misunderstanding about whether local agencies have dragged their feet in implementing MPRSA, it should be clear that they have sought alternate disposal sites as required by EPA's regulations, that they have attempted to aid EPA in defining what constitutes "unreasonable degredation of the aquatic environment," that they voluntarily chose to move to the 106 mile site (admittedly under political pressure), and that they have initiated construction or leasing arrangments for the special larger barges required to travel to the 106 mile site. These are public agencies with responsibilities to the communities they serve to comply with all laws and to achieve a clean environment. They are in the trenches cleaning up our rivers and streams and do not believe they should be regarded as thoughtless polluters.

Additionally, closing of the ocean as an option is a negative act. We recommend that the Committee consider a positive approach that will assist local governmental agencies by providing that Federal lands be a depository of last resort. According to the Department of the Interior 32% of all U.S. lands are in Federal ownership. Any local sewerage agency that can demonstrate that after vigorous effort every land or air alternative it has pursued has failed to produce a disposal site should be provided a permit to use Federal lands in accordance with conditions and terms specified by EPA and the Federal agency that controls the lands.

Sludge will continue to be produced and, in fact, each year the volume increases as new wastewater treatment plants are completed. As a nation, we must develop a rational plan for handling sludge. Closing the ocean is not a constructive step.

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Beneficial Use of Municipal Sludge in the Ocean

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The micronutrients in municipal sludge enhance ocean productivity in much the same way as they enhance plant productivity when applied to the land. The organic solids of municipal sludge can also directly enhance production of valuable biomass in the ocean, particularly benthic biomass. Studies of municipal sludge and wastewater discharge into marine waters throughout the world have demonstrated that, if the application rate of municipal sludge or wastewater was optimized by utilizing larger sites, beneficial enhancement of marine production could be achieved without the adverse effects associated with excessive application rates and overfertilization. Existing evidence indicates that, although not risk- or disadvantage-free, beneficial use of municipal sludges in the ocean is a viable management option which, in some instances, is likely to have fewer negative environmental side effects than other feasible beneficial use options.

The nutrient (nitrogen and phosphorus) value of municipal sludge has been used for many years to enhance the growth of plants in agricultural production, home gardens, and forests. In addition, municipal sludge has been used as a soil conditioner and a ground cover to accelerate reclamation of strip-mined and other land use areas. While the public has serious concerns about the use of municipal sludge for some of these applications, the concept that municipal sludge can provide benefits by enhancing the productivity of plants on the land is generally accepted. In contrast, the concept that the nutrient and nutritive value of municipal sludge could be beneficially utilized in the ocean under appropriate conditions is equally valid and has been largely ignored. Since the scientific community has ignored this potential beneficial use of municipal sludge in the ocean, the public and the policy-makers have an almost universal perception that municipal sludge which is applied to the land is beneficially recycled, while sewage sludge applied to the ocean is dangerous and damaging. The inconsistency in these two views is obvious.

Although both land and ocean disposal of sewage sludges have been intensively researched, the attitude difference toward these two management alternatives has resulted in different research hypotheses and approaches being applied to the two alternatives. Research into the land application of municipal sludges has been aimed at developing the knowledge necessary to optimize the practice for maximum benefit with minimum environmental damage and human health risk. Potential problems, when found, have led to recommendations for lower application rates, changes in composting methods, or other such improvements in management practice. In contrast, research into the ocean application of municipal sludge has been dominated by a search for environmental or human health effects, with the philosophy that any adverse effect, no matter how small, would be sufficient cause to end the practice.

It has become clear that there are minor environmental effects and human health risks inherent in the ocean application of sewage sludge. However, these are no more serious than the adverse effects of improper land application, and it is apparent that these minor adverse effects could be reduced or eliminated by optimizing the methods of ocean application of municipal sludge.

In this paper, we intend to briefly review technical information which demonstrates that municipal sludge can enhance marine production when applied to the ocean environment. We will discuss the conceptual approach that would be necessary in order to realize the maximum benefit from ocean application of sludge, while minimizing environmental damage and/or human health risk. It is hoped that this paper will stimulate further study and research of this concept, since the potential for non-ocean beneficial use of sewage sludges from industrial societies is limited by the availability of suitable land and by air and groundwater contamination problems. In some regions, application of municipal sludge to the ocean may be the only beneficial use that is practicable.

Conceptual Approach and Supportive Evidence

Municipal sludge essentially consists of a low concentration (generally 3–8%) of natural organic particles suspended in water. The natural organic particles in municipal sludge contain trace metals and trace concentrations of synthetic organics that are present in all foods, the human body, and human wastes. Also, most municipal sludges contain small additional quantities of trace metals and synthetic organics that are derived from other sources, including domestic cleaning products, street run-off, and industrial wastes. Municipal sludges also contain low concentrations of micronutrients, such as nitrogen and phosphorus compounds. The concentration of these micronutrients in municipal sludge is generally low since large proportions of the nitrogen and phosphorus entering sewage treatment plants are discharged with the treated effluents in soluble form and, therefore, are not incorporated into the municipal sludge.

Municipal sludges can be beneficially applied either to the land or to the ocean, if the micronutrient elements can be utilized to provide the growth requirements of plants in nutrient-limited environments. In the ocean, the natural particulate organic matter (POM) in municipal sludge additionally can provide food for appropriate consumer organisms. In obtaining all of these benefits, it is important that any offsetting adverse effects are minimized which may be caused by the toxic trace metal, synthetic organic, or microbial contaminants in the municipal sludge. These considerations must be taken into account in developing a conceptual approach to beneficial uses of municipal sludge, either on land or in the ocean.

In the coastal marine environment, production valuable to Man takes place within two distinctly different strata: the euphotic zone of the water column, and the benthic community. Primary production takes place in the euphotic zone, where it is utilized by pelagic food chains, culminating in species which are beneficial as food resources to Man. In addition, a proportion of the organic matter created through primary production is transferred to the benthos where it provides food for other food chains which also lead to organisms which have food value to Man. Therefore, municipal sludge could produce beneficial effects if it was used to enhance primary and/or secondary production within the pelagic food chain or the benthic food chain. It must be borne in mind, however, that enhanced productivity in the ocean may not always lead to beneficial enhancement of the environment, since the health of many communities, particularly benthic communities, is controlled by the critical balance between respiratory use of oxygen and the resupply of this essential element through either photosynthesis or mixing.

The natural POM and micronutrients in municipal sludge are essentially the same as the natural organic matter and nutrients found in treated sewage effluents. The differences between treated wastewater effluent discharge and sewage sludge application to the ocean are simply differences in the concentrations of the materials discharged into the marine environment, and differences in the technical means by which the materials are discharged. However, there have been many more studies of the effects of treated wastewater effluents than of the effects of sewage sludge on the ocean environment, and these studies have shown that treated sewage effluent can enhance marine productivity under appropriate conditions. Because of the similarity between the two sewage treatment byproducts, these effluent effects studies are relevant to demonstration that enhancement of ocean productivity through sewage sludge disposal is a viable concept.

There is considerable evidence that the application of micronutrient-containing sewage wastes to the ocean can lead to substantial increases in phytoplankton and zooplankton productivity within the water column (Pike & Gameson, 1970; Eppley *et al.*, 1972). In this regard, Sindermann (1976) stated: ". . . increases in marine productivity and abundance of fish stocks may well be related to the fertilizing effects of domestic sewage . . . For example, the North Sea has been estimated . . . to receive 256 tons of phosphorous and 1548 tons of nitrogen daily from sewage and run-off. Earlier studies of fish catches in the southern North Sea . . . pointed out that high nitrates and phosphates outside the Thames estuary were derived from the sewers of London, and that the catch of fish per unit area was about double the corresponding catch for the rest of the North Sea, the English Channel, and the Kattegat-Skagerak region. The higher average catch was attributed to nutrients from London".

The productivity of pelagic food chains in coastal areas could be enhanced by the application of municipal sludge into surface layers of the ocean, since municipal sludge contains beneficial micronutrients, particularly nitrogen compounds, and since nitrogen is generally a limiting nutrient, at least for mid-shelf, mid-latitude marine productivity. In addition, it would appear obvious that the POM in municipal sludge is directly utilized by pelagic animals, resulting in enhanced secondary productivity. These two beneficial actions of municipal sludge and sewage effluents would manifest themselves in much the same manner in a specific ocean region. Therefore, the marine productivity enhancement, to which Sindermann (1976) for example refers, may be a function of both of these mechanisms. The doubling of fisheries production around the Thames estuary may be due to a combination of both nutrient-enhanced primary productivity and POM-enhanced secondary production.

Unfortunately, relatively little is documented concerning the availability and nutritive value of sewage POM to pelagic animals. Nevertheless, whatever the relative contributions to primary productivity from nutrient fertilization and to secondary productivity enhancement from POM, it is clearly possible for properly-applied, treated sewage effluent and municipal sludge to increase fisheries production in the ocean.

The micronutrient concentrations in municipal sludge are limited and much of the nitrogen and phosphorous contained in the municipal sludge is not available to phytoplankton, since it is bound to the POM in the sludge. Therefore, although municipal sludge clearly could enhance pelagic productivity under appropriate circumstances, it is probably not optional for this application since its nutrient value is low.

In most areas where treated sewage effluent or municipal sludges are discharged into the ocean, the water column is sufficiently deep that primary productivity is insignificant or does not occur at the bottom of the water column. Therefore, the benthos in these areas relies upon the transport of fixed organic carbon from the euphotic surface layers to the bottom. However, the POM contained in sewage-derived material can provide a food source for the benthos, which utilizes it in the same way as the naturally-produced, fixed organic carbon transported to the benthos from the surface layers. Depending upon its characteristics and location, the POM in municipal sludge can be utilized by benthic filter-feeders or deposit feeders.

Many municipal wastewater outfalls throughout the world are located on the continental shelf, and the effects of these discharges on the benthos within the dispersal area surrounding these pipeline discharges have been intensively studied. The effects of municipal sludge POM which is transported to the benthos have also been intensively studied in areas where municipal sludge is dumped or discharged. These studies of the benthic effects caused by municipal sludge and treated effluent discharges have been more intensive than studies of pelagic effects, since the benthos are less variable in their distribution and are sessile.

The addition of POM to the sediments through ocean outfalls is of particular interest, since the discharge location is fixed and, therefore, it is possible to observe the changes that take place with distance from the discharge point. A gradient of application rates of the suspended solids is thereby formed, with the highest application rates seen at the discharge point and locations extremely close to it, while locations remote from the discharge point represent areas where the application rate is very low.

Studies of the impact of treated sewage effluent, municipal sludge and other organically-rich materials on the sedimentary infauna have been carried out in many areas, including the New York Bight (Pearce *et al.*, 1976), the Saronikos Gulf (Sheppard, 1977), the Gulf of Napoule, France (Bellan, 1979), the Wadden Sea, Netherlands (Essink, 1978), the North Sea Island of Sylt (Otte, 1979), Vancouver, Canada (Otte, 1979), the Thames estuary (Shelton, 1971), the English Channel (Jenkinson, 1972), the Firth of Clyde (Mackay *et al.*, 1972; Halcrow *et al.*, 1973), the Firth of Forth, Scotland (McLusky *et al.*, 1978; Read *et al.*, 1982, 1983), Southern California (Bascom, 1977), the German Bight (Rachor, 1977), and the German North Sea Coast (Caspers, 1976). Each of these studies has obtained data which describe the distribution of benthic fauna in an area where organically-rich sediments are found at or near a point of discharge, or near a dumping site of an organically-rich material, usually municipal sludge.

In each of the above studies, the distributions that have been observed are essentially similar. In the sediments with the highest organic carbon content, the diversity of benthic infaunal populations is reduced, although the biomass is usually increased. In these organically-rich sediments, species that dominate are usually deposit-feeders, particularly polychaetes and bivalve molluscs. In an area ringing the central portion characterized by the highest organic carbon content in the sediments, there is always a region of lower organic carbon enrichment where diversity of species is normal, but the biomass is higher than areas further removed from the high organic sediments. In these transition zones, filter-feeding species and their predators dominate. The available evidence from these studies support a conclusion that the dominant factors controlling changes in ecology of the benthos are the increased sedimentation rate and the greater availability of organic detritus. Cumulatively, these factors lead to competitive advantages for organisms with different feeding strategies than those which dominate in slower-accumulating, lower organic sediments (e.g., Caspers, 1976). In most of these studies, higher concentrations of trace metals and synthetic organic compounds have been found in the organically-rich sediments, compared to the coarser-grained sediments found farther from the discharge. However, the available evidence suggests that toxic contaminant levels in these sediments are not sufficiently high to have caused the observed changes in benthic ecology.

In certain of these studies where organic loading rates were extremely high, the zone at the point of discharge exhibits both reduced species diversity and reduced biomass. It would appear, therefore, that the changes that take place in benthic fauna in an area to which municipal sludge POM is applied are systematically related to the application rate. As application rate increases, the first effect is a beneficial one, that of increased biomass without substantial change in the species composition (species diversity). At higher loading rates, the biomass continues to increase, but shifts in species composition may occur toward deposit-feeders which are, in some cases, thought to be less readily included in beneficial food chains (Boesch, 1982). At even higher application rates, both species diversity and biomass may be substantially reduced. These changes are entirely analogous to the effects that would be observed by increasing application rates of municipal sludge or composted municipal sludge to a terrestrial ecosystem. At low rates of application, beneficial enhancement of productivity is observed; some plant species would be inhibited at higher rates; and only resistant plant species would survive at extremely high continuous application rates.

If ocean application of municipal sludge is to be used for beneficial enhancement of the benthos, these studies indicate that the application rate must be optimized to maximize enhancement of biomass, while maintaining a diversity and species composition which ensures that the additional biomass is incorporated in useful food chains. It should be emphasized that this optimization process may not involve choosing an application rate which causes no changes in benthic species composition, since certain compositional shifts may be beneficial (i.e. larger total populations of commercially valuable species may be obtained even though the populations of certain commercial species are somewhat reduced).

Several well-documented studies of municipal sludge disposal at ocean sites in the United States and Europe are particularly relevant to an understanding of the potential for beneficial use of municipal sludge applied to the ocean. Caspers (1976) reports a detailed study of a municipal sludge dumpsite used by Hamburg, West Germany. This study covered a several-year period, beginning shortly after dumping commenced. Caspers reported that massive populations of the mollusc *Abra alba*, a suction-feeder, developed within the dumpsite region during the first several years of dumping. This population developed at the expense of filter-feeding bivalves, but other components of the benthic ecosystem were relatively unaffected. The *Abra alba* population was reported to be consumed by substantial populations of various species of flatfish which became established in the area within several years. As the dumping continued, the *Abra alba* grew extremely dense and, in certain areas, anaerobic sediments developed. In these sediments, species diversity was substantially reduced such that no macrofauna were detected and large populations of a polychaete had displaced other benthic populations. The sequence of events described by Caspers represents the response of the benthic community to increasing loading of municipal sludge that took place over a several-year period after dumping began. During the initial period, beneficial changes occurred in response to what can be considered low, long-term application rates, while the adverse effects, including reduced species diversity and development of large polychaete populations in anaerobic sediments, occurred only in response to much larger, long-term loadings or application rates. If the additional municipal sludge dumping occurring in this area had been moved to another location at the time when the maximum enhancement of useful biomass in the initial dumping area had been reached, the adverse effects observed from long-term, high application rates at the geographically-limited dump site would have been avoided. This study is a good example of the problems that are created by attempting to restrict the disposal of municipal sludges in the ocean to a very small area. Much the same situation, of course, would occur if the application of composted municipal sludge to the land were to be contained in a very small area. It is important to realize that in the region of the German Bight studied by Caspers, large areas of benthos exist that are very similar to the benthos at the studied disposal site. Therefore, as practiced on land, it would certainly have been possible to use dispersed dumping locations or to rotate locations from year-to-year, or on shorter time scales, to maintain an appropriate application rate at a given location.

Watling *et al.* (1974), in a study of a municipal sludge dumpsite off Delaware Bay peformed a decade after dumping began, observed changes that were similar to those observed by Caspers in the German Bight. However, after a decade of dumping, the benthic populations observed by Watling closely resembled the populations observed by Caspers in the German Bight after only several years of dumping. At the Delaware site, Watling *et al.* reported that the benthos consisted of a diverse and abundant fauna with very large populations of *Nucula proxima*, a deposit-feeding bivalve. It seems likely that the extreme changes observed at the German Bight dumpsite were not observed at the Delaware site, because the effective application rate of sewage particulates to the benthos at the Delaware site was much smaller than that at the German Bight site. At the Delaware site, the long-term application rate was probably close to the optimum application rate which was needed to enhance productivity without the negative consequences associated with over-application rates.

Thompson & Psuty (1984) studied the annual growth rates of the commercially-valuable ocean quahog, *Arctica islandica*, at, and in the vicinity of, a municipal sludge dumpsite utilized by Philadelphia during the period 1973–1980. Growth rings observed in ocean quahog shells are analogous to the growth rings found in trees and, therefore, the quahog's rate of growth in any given year within its several-decades-long lifetime can be estimated from the width of the ring. It was found that those ocean quahogs which inhabited areas receiving municipal sludge particulates grew faster during the years that dumping took place than they had previously, and faster than quahogs from control areas outside the range of the dumping influence. This Philadelphia site is a highly dispersive site and relatively small amounts of municipal sludge were disposed there. Therefore, the application rate at this site was very low, and no adverse effects on the benthic faunal composition were observed. Instead, the only indication of an effect was one of a beneficial increase in the growth rate of the commercially-valuable ocean quahog.

Chen & Orlob (1972) studied the changes in benthic populations that occurred around an outfall off San Diego during a 2 year period before, and a 7 year period following, initiation of the discharge. During the third and fourth years of discharge, digested municipal sludge was discharged in addition to the treated effluents. The discharge resulted in increased biomass and species numbers, without significant changes in community composition, in the area surrounding the outfall (stations approx. 1 mile from the discharge point). This observed enhancement appeared to respond to the additional carbon loadings during the period of municipal sludge discharge, and appeared to diminish when the municipal sludge discharge was discontinued. Chen & Orlob were able to estimate the beneficial application rate, since they 'tentatively concluded that an increase of more than 3 mg g^{-1} of BOD in the sediments is the threshold at which one may anticipate an adverse reaction of the benthic animal population. The environment can accept and beneficially use some organic enrichment up to the threshold.'

Strategy for Beneficial Use of Municipal Sludge in the Ocean

In order to understand the changes that are needed in municipal sludge management if the potential benefits of municipal sludge are to be utilized in the ocean, it is necessary to examine the characteristics of our current disposal strategies. At present, two methods of disposal of municipal sludge in the ocean are utilized: discharge through outfalls, and dumping from barges. Discharges through outfalls are inflexible and difficult to manage, since the discharge location is fixed, and the initial dispersion is generally low (approx. 100 times). However, the discharge depth may be selected to some degree. Ocean dumping from barges is considerably more flexible since the discharge site can be easily moved and the application rate can be controlled by rotating disposal among locations on appropriate time scales. Ocean dumping provides a high potential for dispersion with initial dilutions of approximately 10,000 times. However, ocean dumping has several limitations, including its higher cost compared to pipeline discharges, and the technological difficulty of discharging the municipal sludge into other than the upper euphotic zone of the ocean where the maximum benefits of the municipal sludge may not be realized. Nonetheless, at the present time, the greatest disadvantage of ocean dumping is the philosophy which drives the practice of ocean dumping. Although ocean dumping of sewage sludge is inherently a dispersive practice which relies upon assimilation of the material into the marine ecosystem to minimize adverse effects, current United States policy adheres to a containment philosophy, which restricts the disposal of municipal sludge to very small dumpsites in specific locations, in a misguided and naive attempt to restrict the adverse effects of sewage sludge to this small location. In fact, this containment philosophy results in the creation of adverse effects which need not occur, since this policy dictates that application rates in the chosen small site are extremely high.

Any strategy for ocean productivity enhancement must take into account the following principles:

(1) Municipal sludge must be dispersed effectively to minimize potential impacts from excessive application rates.

(2) The application rate must be controlled to maximize the productivity of valuable species.

(3) As with all other municipal sludge management options, the concentrations of toxic trace metal and synthetic organics in the municipal sludges must be minimized through pre-treatment and other toxic control strategies.

(4) Areas where beneficial application of sewage sludge can be practiced must be carefully selected. The existing information suggests that at least two types of application areas may be appropriate: mid-shelf areas characterized by sediments with low organic content and a relatively impoverished benthic fauna; and shallow areas with fine grained muddy sediments, such as those found in the German Bight.

Comparative Advantages of Beneficial Use of Sewage Sludge on Land and in the Ocean

It is instructive to compare the advantages inherent in utilizing municipal sludge to enhance productivity on the land, which is an accepted practice, and in the ocean, which is at present not accepted. Application of municipal sludge to the land, usually in composted form, has several disadvantages, including the potential for: groundwater contamination; contamination of crops with trace metals and toxic organics; build-up of contaminant concentrations in the soil (particularly cadmium and copper) and, consequently, limited application rates and lifetime loadings; high cost; limited reliability of pathogen and odour control afforded by the existing composting technology; and adverse public reaction. In contrast, application of municipal sludge to the land has the advantage that the nutrient value of the municipal sludge is maximized by its use in a single-crop, high-yield system, and it is possible, although probably unrealistic, to envisage land application as a containment approach where the toxic contaminants are contained in a given location for future management.

In contrast to the use of municipal sludge for productivity enhancement on the land, ocean productivity enhancement would have several disadvantages including the inability to contain the toxic contaminants for future management, and the poor control at present of target organisms for enhancement, which would lead to a relatively low yield of harvestable food compared to land application. Of course, the first disadvantage is of no consequence if the concentrations of the toxic materials in municipal sludge are reduced to the lowest possible levels, and if the material is effectively dispersed and assimilated in the ocean. Productivity enhancement through sewage sludge disposal in the ocean has several major advantages. These advantages include: the availability of large areas for application of the increasing quantities of municipal sludge that are being generated by major coastal cities; the lack of long-term contaminant build-up in the sediments; the lack of biomagnification of metals through the marine food chain, as compared to land food chains; the reduced need for pathogen control since many pathogens are inactivated in sea water; the probable reduction in human health risk (seafood contamination vs. groundwater and crop contamination vs. air pollution); and the low cost of the management technique.

It is clear that the use of municipal sludges for ocean productivity enhancement is not without risk and potential disadvantages. However, the same statement is also true for the use of sewage sludges for land productivity enhancement and all other practicable municipal sludge management options. Perhaps the most compelling argument in favour of further research on the potential beneficial uses of municipal sludges in the ocean is the public perception regarding the disposal of municipal sludges. Although, at present, the public is not in favour of ocean disposal of materials since it considers the practice to be damaging to the ocean, the public, in most developed nations, is much more intensely opposed to the disposal of these same materials on the land or into the atmosphere, both of which are closer to their living environment. Therefore, the beneficial use of municipal sludge in the ocean, properly researched and managed, may be a more acceptable practice for long-term municipal sludge management than land application.

In summary, properly managed ocean disposal of municipal sludge would have several benefits, including the conservation of scarce land resources, the protection of groundwater, the minimization of atmospheric pollution, the minimization of human health risks, reduced treatment costs, and finally ocean productivity enhancement.

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Testimony of

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before the

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Committee on Merchant Marine Fisheries
Subcommittee on Oceanography
and
Subcommittee on Fisheries and Wildlife Conservation
concerning
Ocean Dumping of Sewage Sludge

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Washington, D. C.

It is a pleasure to be here and to represent the Waste Management Institute (WMI) of the State University of New York. The goal of the Institute which was founded in November 1985 is to reduce the impact of waste generation and disposal on society through a program of research, assessment, education and policy analysis. It will emphasize programs focusing on alleviation of existing impacts of waste disposal, and recycling and reuse of wastes. It intends to foster the results of this research through education and outreach programs and by working with governmental institutions to help formulate sound waste management policy. Because of our geographical location, the Institute is unusual among waste management organizations in that it is interested and concerned with appropriately using the ocean for disposal of wastes. I thank you for providing the opportunity to provide our perspective on some of the marine pollution problems in the New York Bight and their relationships to the complex issues of waste management in the New York and New Jersey metropolitan area.

In the summer of 1987, the New York Bight and the larger Middle Atlantic Bight once again experienced a series of incidences whereby waterborne floatable waste materials and debris were stranded along beaches from New Jersey to Virginia. Of particular concern were the stranded carcasses of dolphin and hospital wastes. These events rekindled the overall attentiveness to the issue of water quality in our marine waters and how we might relieve the stress placed upon them.

I will speak about three issues regarding the 1987 events and the related waste management issues. These are:

- the sources of floatable wastes and the physical transport processes that affect their fate,
- the use of 106-Mile dump site and the projected effects of dumping sewage sludge there,

  and,
- alternative strategies for disposing of these wastes.

Floatable Wastes

Many of you may recall that in the summer of 1976, the wash-up of floatables was so extensive along the south shore of Long Island that the Governor of New York declared Nassau and Suffolk counties disaster areas. The President assigned the Job Corps, under the supervision of the U.S. Coast Guard, to clean the beaches.

There were a few unusual sources of materials that contributed to the 1976 incident (i.e., a sewage sludge tank explosion in Hempstead Bay and pier fires in the Hudson-Raritan Estuary) and it has been established that there were unusual incidents in 1987 as well. Specifically this past summer there were several cases of illegally disposed municipal and hospital wastes. However, the bulk of noxious materials continue to reach Bight waters from the same sources in 1987 as they did in 1976. These include combined sewer outfalls from the New York-New Jersey metropolitan area, poor solid waste handling practices at transfer points, during transport in the Hudson-Raritan Estuary and at the Fresh Kills Landfill. Other important contributors are commercial and recreational boats, and outflow from bays and estuaries.

Floatables typically do not occur in large quantities in sewage sludge as they are quite effectively screened . With regard to finding floatable wastes (particularly tampon applicators) associated with sewage sludge dumping, it should be pointed out that previous investigations have led to negative results. That is, essentially none have been recovered when using neuston nets to skim the surface waters behind sludge dumping vessels. In the 1976 investigation, using marketing statistics, estimates of potential inefficiencies in the sewage treatment system, and oceanic transport processes, only 7% of the tampon applicators recovered on the beaches were theoretically attributable to ocean dumping.

The Hudson-Raritan estuary serves as the greatest source of floatable waste to the Bight since the bulk of the individual sources tend to be located around the periphery of the estuary. Floatables are effectively flushed during the time of the spring freshet which typically occurs from March to May in the upper Hudson. The impact of the freshet on the Bight lags this by about one month so that large quantities of floatables can be expected to be flushed into coastal waters at or near the time of the commencement of the summer beach season. Other than at the time of the spring freshet, the floatable load at any one time in the estuarine plume is largely a consequence of the relatively recent rainfall history. A heavy rain following an extended dry period will most likely produce the heaviest volume or slug of floatable material. The streets will be cleansed, the sewage treatment plants bypassed, the transfer points and landfills flushed by runoff and perhaps higher storm high waters. It takes a rainfall intensity of only a few hundreths of an inch per hour for an hour or more in the metropolitan area for the sewage treatment plants to be bypassed.

Once floatable materials are flushed into the Bight, they are subject to the physical oceanographic and meteorological processes operating on Bight waters. Often they are preferentially carried with the Hudson-Raritan estuarine plume along the New Jersey coast. This is why the beaches at Sandy Hook are so often cluttered with undesirable materials.

The general flow of surface waters over the continental shelf is from the northeast to the southwest parallel to the trend of the coast. Floatable materials in the surface layers are transported with these currents but modified by wind driven transport.

During summer months the prevailing winds have a pronounced effect on the distribution and fate of floatables. Typically the prevailing wind is from the south or southwest. These winds tend to transport the floatables to the north and east - a consequence of the earth's rotation. Thus floatable materials will tend to be well disbursed - some lost at sea, others creating the general clutter that we have learned to tolerate on both New Jersey and Long Island beaches.

In 1976, the prevailing summer wind field intensified and was extremely persistent for a period of two to three weeks, driving the floatable material northward and eastward and eventually ashore on Long Island. This wind condition was an important aspect contributing to the large-scale oxygen depletion in Bight bottom waters later in the summer. The floatable load was excessively heavy because of extremely large river runoff in May.

In 1987, the New Jersey Department of Environmental Protection has indicated that the wash-up of floatable material was particularly bad during the periods of 27-29 May and 13-16 August. The May incident was preceeded by the flushing action of the spring freshet of the Hudson River which is estimated to have reached the Bight in early May. Easterly to southeasterly winds occurred over much of the period of 18-27 May, driving the recently flushed floatable material back toward the New Jersey coast.

In August, easterly to southeasterly winds dominated the period of 5-14 August. Further, between 3-10 August, there was rainfall in excess of two inches in the metropolitan area which undoubtedly thoroughly flushed the streets, combined sewers and other major sources of floatables. Thus there were meteorological conditions that led to the heavy concentrations of floatables along the New Jersey coast this past summer.

Review of the summer climatological information suggests that the normal southerly to southwesterly wind field was less persistent and less energetic than normal. Throughout the summer the normal wind field was interrupted with winds from the east and northeast. As a consequence of the less energetic winds, the northeasterly to southwesterly flow of surface waters was intensified. The Hudson-Raritan River plume hugged the New Jersey coast. The currents and their floatable load veered shoreward in response to the winds from the east and northeast.

Meteorologists use a measure called constancy as an indicator of the persistence of the wind blowing from a given direction. The higher the value, the more persistent the wind; a steady wind would have a constancy of 100. The 25-year norms for June, July and August at J. F. Kennedy airport are tabulated in Table I along with the corresponding values for 1976 and 1987. These data indicate two unusual but totally different wind fields. They indicate why stranded floatable material would be expected to be greater than normal for each of the years but in one case on Long Island and in the other on New Jersey beaches.

Interestingly, the meteorological conditions of 1987 contributed to relatively high dissolved oxygen levels in nearshore bottom waters in the Bight. Thus while aggrevating the floatable situation in New Jersey, the summertime climate also improved the health of bottom waters in 1987. Essentially, however, if floatable material was in the surface waters of the Bight, there was a reasonable likelihood that it would be washed ashore. This includes carcasses of dolphin that may have died of natural or other causes.

Table I. a. Wind constancy for the months of June, July and August for 1976 and 1987 compared with the 25-year norm, 1949-73.

b. Wind energy for 1976 and 1987 expressed as a percentage of the norm, 1949-73.

a. Constancy (%)

Month	Norm	1976	1987
June	31.9	55.3	26.2
July	39.1	38.8	28.7
August	28.1	23.3	13.1

b. Energy (%)

Month	Norm	1976	1987
June	100	104	84
July	100	104	67
August	100	129	94

Sewage Sludge Dumping at the Deepwater Site

The deepwater site, commonly called the 106-Mile site is beyond the edge of the continental shelf and overlies 1700-2800 m of water. It is 196 km southeast of Ambrose Light Tower and is the closest deepwater location to New York Harbor. Based on the flux of seawater through the site, the dilution of sewage sludge within 20 km of the dump and in the upper 20 m of the water column (depth of the seasonal mixed layer) is about 5 x 10 . This allows for dilution of sludge contaminants downstream of the site to near-background levels. During winter, dilution can be expected to be about 10 times greater than during summer months due to the absence of thermal stratification.

After oceanic dilution of the sewage sludge, Fe, Pb, Zn, Cr, and PCBs would be expected to occur at detectably elevated concentrations within the mixed layer downstream from the deepwater site. About 500 km southwest of the site and offshore from Cape Hatteras, the sludge would be further diluted by entrainment into the Gulf Stream.

No sludge component that would be expected to occur in the water is likely to be of biological consequence. Although phytoplankton in the open ocean are more sensitive to contamination than those from coastal areas, the sludge dilution should be adequate to prevent local effects. Commercial seafood species that may be exposed include squid (*Loligo peali* and *Illex illecebrosus*), tilefish (*Lopholatilus chamaeleonticeps* and *Caulolatilus microps*), American lobster (*Homarus americanus*), American shad (*Alosa sapidissima*), Atlantic mackerel (*Scomber scrombrus*), black sea bass (*Centropristis striata*), scup

(*Stenotomus chrysops*), and summer flounder (*Paralichthys dentatus*). The exposure of any of these species would be limited because they do not occur in or are not restricted to the surface mixed layer.

Estimates of sludge-derived sediment contamination have been developed by calculating the flux of settling sludge into previously deposited sediment. Particles that settle at 10 m d^{-1} and thus reach the seafloor in 200 d would be spread over a 10^4 km^2 area. Once deposited, sludge, like natural particles, would be biologically mixed into the sediment. Data on rates of bioturbation in deep-sea sediments indicate that a conservatively low rate constant would be 0.1 cm^2y^{-1}. With that mixing rate and a sewage-sludge flux consistent with 20% solids being spread over 10^4 km^2, incremental increases of heavy element concentrations at the sediment surface after 100 y will be close to present-day concentrations. Assuming no loss by dissolution as particles sink and no degradation by bacterial action, the maximum concentrations of PCBs and PAHs after 100 y will be 0.02 and 0.04 $\mu g\ g^{-1}$ (dry wt), respectively.

Therefore, dispersion of sewage sludge dumped at the deepwater site would be sufficient to alleviate concern about contaminants, except for those substances in the faster-settling particles that are very highly concentrated in sewage sludge. It appears that if dumping continued for many years, part of the deep seafloor would be contaminated with PCBs and PAHs. Some bioaccumulation of PCBs and PAHs by benthic organisms in the deep sea would probably occur, but there would be no consequences in terms of contamination of seafood or threat to the size of commercial or recreational fish stocks. Data from laboratory or field situations in the coastal ocean indicate that benthic organism tissue concentrations of PCB or PAH, corresponding to sediment contamination levels mentioned here, would not be hazardous to maintenance of stable populations.

Sewage sludge dumping occurring at the deepwater site may cause these long-term effects:

1. Minor accumulation of contaminants in commercially important fishes (primarily squid and tilefish).
2. An increase in contaminants in surficial sediments due to the flux of sewage sludge to the bottom, which would be 10% of the natural particle flux.
3. An increase of PCBs and PAHs in sediments relative to existing low background levels.
4. Increased exposure of PCBs to global oceanic circulation.

Alternative Disposal Technologies

There are alternatives to the current ocean dumping techniques that should be explored. These include improvements to ocean dumping practices as well as potential land based alternatives.

1. Temporarily Varying Dumpsites

In seeking to balance economic, environmental, and public concerns about dumping, dumpsites should be examined with regard to not only the type of wastes they can accept but also when they might be used. Seasonal dumpsites have been used for acid-waste disposal in the past. The use of temporarily varying dumpsites would permit waste managers to take advantage of seasonally changing ocean processes to minimize environmental effects that might occur if a site were to be used continually. Thus, a site might be used when it was likely to exhibit increased mixing potential but could be avoided during times of unusual environmental sensitivity, such as during migratory or spawning seasons.

2. Sludge Injection

The fate, and hence the effects, of ocean dumped wastes can be better controlled or channeled through the use of injection techniques. In outfall design, it has long been recognized that surface effects of effluent should be minimized. An entire technology has developed as a consequence of dealing with the physics of buoyant plumes. Similar problems exist with ocean dumping but have not been acknowledged.

It may be advantageous to isolate ocean-dumped sewage sludge from surface waters in order to reduce potentially damaging effects on fish eggs and larvae that reside in surface layers. Other reasons to consider waste injection include greater control over the ultimate fate of the waste, either by using subsurface flow fields to transport wastes in a particular direction or by making use of the depositional process to the sediments. Certainly, injection can be used to avoid coastal impacts resulting from the vagaries of wind-driven surface circulation.

The Marine Board of the U. S. National Research Council has examined innovative engineering approaches for ocean waste disposal. Some technologies that may be explored for injecting ocean-dumped materials include use of retractable swords or pipes built into hulls of transporting vessels, sludge disposal using gravity and momentum, and buoys with injection devices that reach below the pycnocline.

3. Stabilized Sludge

Research has been undertaken on the development of stabilized blocks composed of dewatered sewage sludge and fly ash for disposal into the ocean. A demonstration project has determined the strength and stability of the blocks and some of the consequences of using them in the marine environment. No adverse biological effects have been found in laboratory studies or in the marine environment. It is doubtful, however, whether large volumes of sludge will be disposed of through the use of stabilized blocks, as the blocks consist only of 15% sewage sludge. This technology may be worthy of consideration as a means for disposing of highly contaminated sewage sludges that otherwise would not be acceptable in the marine environment or elsewhere. Under the proper circumstances, such blocks could be used for fishing reefs or beach stabilization projects. They also may be disposed of as inert rubble at a dumpsite such as the cellar dirt site in the New York Bight apex. The (WMI) is continuing the development of this technology for incineration ash.

Another sewage sludge waste by-product that the Institute is interested in exploring is that generated by a residue melting furnace. This technique employs a Japanese technology to create a stabilized sewage sludge slag or aggregate material that could be used in a variety of ways. We are concerned however, with the quality of stack emissions and the energy costs associated with the process.

Conclusions and Recommendations

I have reviewed what we know concerning the sources and fates of floatable wastes in the New York Bight, the projected long-term effects of sewage sludge dumping at the 106-Mile dumpsite and some alternatives to the present practices of ocean dumping of sewage sludge.

In conclusion the following points can be made:

1. The sources of floatable waste in the New York Bight are primarily from combined sewer outfalls, poor solid waste disposal practices at transfer points and during transport and at the Fresh Kills landfill, commercial and recreational boats, and outflow from bays and estuaries. Ocean dumping of sewage sludge is not a significant contributor to the floatable problem.

Certain technological improvements should be explored to reduce the quantities of floatable waste reaching marine waters:

- Improve operation and maintenance of sewage treatment plants,
- Strive to reduce or eliminate combined sewer overflows,
- Explore more thoroughly, alternatives for isolating material released to the marine environment by combined sewer overflow,
- Continue to improve the process of removing litter and floatable debris from streets and other paved areas served by combined sewer systems,
- Improve solid waste handling practices aiming toward recycling and the use of wastes as an energy source, and

- Improve the process of transferring materials to landfills and reduce the volume of material escaping to marine water from landfills.

2. We can dispose of waste on the land, in the air or in the water. Ocean dumping is therefore just one technology for disposing of a particular class of wastes. Its primary advantage is that of diluting and dispersing of wastes. Dumping of sewage sludge at the 106-Mile site is particularly effective in this regard as the long term projected effects are expected to be minimal - even for an extended period of time - say 100 years.

3. There are alternatives to the current practice of ocean dumping. These include improved ocean dumping techniques (temporarily varying dumpsites, injection techniques, stabilizing sewage sludge prior to dumping and developing more effective disposal vessels). Several land based alternatives hold promise as well but each has limitations particulatly in the densely populated areas of New York and New Jersey. Air pollution and groundwater contamination will continue to be major concerns. Resource recovery is a positive step but its efficiencies must be of concern. Sludge stabilization with associated development of secondary products also is worthy of environmental and technology assessment.

One technology that should be limited is that of shipping sludge (for the purposes of landfilling) to other parts of the country. This approach solves little and will only create problems for others in years to come. It also leaves the sludge management authorities of the metropolitan region at the whim of local politics negating the need for longer term commitment and management.

Waste disposal in any form is an extremely volatile issue. Those of us who live by the ocean are anxious to implement land-based alternatives. Given the complex nature and volumes of society's wastes, there is really no single acceptable solution. We are unacceptably degrading the ocean, the air, the land and groundwater or taking up valuable and diminishing space.

Until we can significantly improve the quality of the wastes, reduce their volumes, and improve the technologies available to deal with them, we must explore as many disposal options as possible. For each community and class of waste we must be able to find the technology that minimizes environmental risk at a price we can afford.

In this context the oceans should remain a media of consideration.

The use of the 106-Mile site for sewage sludge dumping should continue on an incremental basis. Its use should be reviewed, say every five years, and compared with that of other alternatives. An assessment of environmental impacts should be required prior to the review. Hopefully, with the motivation of public and political concern, more effective alternatives will be developed.

This concludes my testimony. I will be glad to try to answer questions.

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"Even the Longest Journey Must Start With a Single Step"

STEPS TOWARD SOLVING NEW YORK CITY'S OCEAN DISPOSAL PROBLEMS

TESTIMONY ON BEHALF OF THE

NATURAL RESOURCES DEFENSE COUNCIL, INC.,

BEFORE THE

SUBCOMMITTEE ON WATER RESOURCES

OF THE

COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION,

U.S. HOUSE OF REPRESENTATIVES

August 2, 1988

Prepared by: Lynne T. Edgerton, Esq.
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I. INTRODUCTION

Mr. Chairman, my name is Lynne Edgerton. I am a senior project attorney in the Coastal Project of the Natural Resources Defense Council (NRDC) in New York City (the City). With me is Jessica Landman, an attorney with NRDC's Clean Water Project in Washington, D.C.

The Natural Resources Defense Council, Inc. (NRDC), a national organization with over 83,000 members, is dedicated to protecting public health and the environment against pollution, and to preserving natural resources for current and future generations. NRDC considers the expeditious phase-out of ocean dumping an important step toward securing a clean and productive marine environment and has actively supported H.R. 4338's 1992 phase-out deadline.[1] In addition, NRDC has had a long standing interest in the beneficial reuse and safe disposal of sewage sludge.[2]

During the last year, NRDC has taken an active part in the consideration of three inseparable aspects of New York City's plans for use and disposal of its sewage sludge: 1) EPA's consideration of New York City's pending ocean-dumping permit application; 2) EPA's regulations pursuant to the Clean Water Act governing sludge management, use and disposal, and 3) New York City's pretreatment program and NPDES permit applications. More recently, we have begun reviewing land-based alternatives for the beneficial reuse and safe disposal of New York City's sewage sludge.

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1. See Statement of Clifton Curtis of the Oceanic Society on behalf of NRDC and other organizations before Senate Committee on Environment and Public Works (Feb.18, 1988); Letters from Lynne Edgerton to Christopher Daggett, Region II Administrator, and Richard Caspe EPA, May 16, 1988 and June 29, 1988. (attachment #1).

2. For example, NRDC has filed suit against United States Environmental Protection Agency over the EPA's failure to issue regulations governing the management and safe disposal of sewage sludge. Natural Resources Defense Council, Inc. et al. v. Thomas, Civ. No. 88-2101 (E.D. Pa.). In addition, by letter of July 20, 1988, NRDC has asked EPA to classify publicly owned treatment works (POTWs) that ocean dump sewage sludge as priority POTWs for sludge permitting purposes as part of EPA's Interim Implementation Strategy under the Clean Water Act. See also, Comments of NRDC before the New York Department of Environmental Conservation on the draft State Pollution Discharge Elimination System (NPDES) permits for the 14 municipal treatment facilities in New York City (June 29, 1988) (attachment #2).

The principal focus of today's hearings is whether New York City can phase-out ocean dumping of sewage sludge by December 31, 1992 - the deadline established in the proposed Ocean Dumping Phase Out-Act of 1988 (H.R. 4338).

NRDC's reply is yes: New York City can certainly stop dumping its sewage sludge in the ocean by 1992. Equally important, however, is whether New York City can phase-in safe land-based beneficial uses and safe disposal of its sludge. Both goals can be met only if New York City takes aggressive steps now to improve its sludge management and industrial pretreatment practices.

In the past, New York City has not been able to phase-in safe land-based management of its sewage sludge largely because it has never tried. Throughout the 1980's New York City repeatedly chose to rule out beneficial use options and land-based disposal options in favor of ocean dumping. New York City's commitment to ocean-dumping has been concerted and intentional. The City has never made even the smallest effort to dispose of its sludge on land - no pilot project, no alternative disposal for any of its 14 sewage treatment plants. During the same period, the City failed to institute an aggressive pretreatment program to reduce the levels of toxics in its sludge.

New York City's message is clear: it will not stop ocean dumping its sludge unless it is forced to do so. If Congress does not enact H.R. 4338 or its equivalent, Congress should expect that New York City will continue ocean dumping its heavily polluted sewage sludge well into the 21st century.

In today's testimony, we will briefly

1) describe the history of New York City's failure to identify or implement land-based alternatives to ocean dumping,

2) document how New York's continuing failure to implement an aggressive pretreatment program critically affects New York City's land-based beneficial use and safe disposal options,

3) discuss how EPA's inaction in issuing sludge regulations is contributing to the confusion over how best to attack the problem, and

4) provide some examples of how other large American cities are managing their sewage sludge.

II. THE HISTORY OF NEW YORK CITY'S REPEATED FAILURE TO IDENTIFY OR IMPLEMENT LAND-BASED ALTERNATIVES TO OCEAN DUMPING

As the members of this Committee are well aware, Congress in 1977 amended the Ocean Dumping Act, 33 U.S.C. §1412(a), to provide for the end of sewage sludge dumping into ocean waters.[3]

As a result, New York City commissioned a detailed study to analyze land-based alternatives to the ocean dumping of sewage sludge. In this study,[4] Camp Dresser and McKee, (CDM) proposed a two-step process for the City, whereby it could phase out ocean dumping, and institute a long-term, more environmentally sound plan.

The first half of the study, completed in 1978, suggested that the City should convert its facilities to the manufacture of sludge compost, which was to be applied to city parklands over a seven to nine year period. This interim plan would buy time for the construction of efficient incinerator facilities which were recommended in the second half of the study, which was released in 1980.

The CDM report initially considered four major methods of disposal: combustion, land application, composting, and landfilling. Landfilling was rejected immediately as potentially harmful to groundwater, and impractical due to the lack of appropriate sites near to the City. The prospects of land application and composting seemed more attractive, however, and would have been recommended had it not been for the level of toxic heavy metals present in some of the sludge.

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[3] The Ocean Dumping Act, provides that

> The Administrator [of EPA] shall end the dumping of sewage sludge ... into ocean waters ... as soon as possible after November 4, 1977 ..., but in no case may the Administrator issue any permit, or renewal thereof ... which authorizes any such dumping after December 31, 1981.

33 U.S.C. §1412a(a) (1977).

[4] City of New York Department of Environmental Protection, New York City Long-term Sludge Management Plan and Environmental Information Document, prepared by Camp Dresser & McKee (July 1980) (Camp Dresser & McKee 1980); City of New York Department of Environmental Protection, New York City Sludge Management Plan, prepared by Camp Dresser & McKee (Sept. 1978) (Camp Dresser & McKee 1978).

The merits of creating compost and fertilizer from sludge were obvious to the study's authors. They stated that all of New York City's digested sludge could provide 73% of the nitrogen to grow corn in 25 townships, satisfying the fertilizer needs of 29,000 out of 37,000 cultivated acres.[5] These findings were also consistent with Congress' stated policy of promoting beneficial uses of sewage sludge. The composting alternative was incorporated in CDM's proposed interim plan for New York City, and the facilities were to have remained operational even after the City implemented the proposed incinerators.

However, the problem of heavy metals in the treated sludge product remained significant. CDM concluded that the sludges then being produced in New York City's plants were too toxic under EPA and USDA guidelines to be applied to agricultural lands. They suggested that a comprehensive residential and industrial pretreatment plan to reduce heavy metals at their source could reduce toxics in the sludges of 8 out of 12 existing New York City treatment facilities down to acceptable levels by the year 2000. In the interim, the sludges could be applied only to non-agricultural lands, such as city parks.[6]

Camp Dresser and McKee stated the problem flatly: "8-12 years would normally be required to implement and bring online and make operational any recommended plan with the magnitude and complexity of the project envisioned for the interim solution."[7]

Somewhere along the line however, New York decided not to adopt any of the Camp Dresser and McKee recommendations. None of the composting or incineration facilities were constructed.

Instead, the City of New York filed suit to retain the ocean dumping option. In City of New York v. U.S.

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[5] Camp Dresser & McKee, (1978) at 3-82.

[6] Camp Dresser & McKee (1978) at 2-61.

[7] Camp Dresser & McKee (1978) at S-2.

E.P.A., the District Court for the Southern District of New York held that EPA could not halt New York City's ocean dumping of sewage sludge without seeking detailed and comprehensive information on alternative disposal methods and their impacts, in order to evaluate the availability and environmental impacts of land based alternatives.[8] The Marine Protection Research and Sanctuaries Act (MPRSA) permitting regulations were remanded for revision consistent with the Court's opinion. In addition, the Court enjoined EPA from enforcing its regulations until it also had directed the City to apply for a special permit to dump, and until EPA took "final action" on the City's application. The EPA did not appeal -- a decision made by then-Administrator, Anne Burford. Nor has EPA revised its regulations in accordance with the 7-year old 1981 district court order.

As a result, New York City has been ocean-dumping its sludge under the interim court order in that case rather than under EPA-sanctioned (or Congressionally-authorized) MPRSA permits. All dumping has been relocated to the 106-mile site as of January 1, 1988, pursuant to Section 508 of the 1987 Water Quality Act (amending Section 104 of the MPRSA by adding Section 104A).

In 1986, EPA finally directed New York City to submit a complete application for a special permit to continue its ocean dumping.

New York submitted an ocean dumping permit application on January 15, 1987. That application has been pending before EPA's Region II for the last 18 months, because it is too incomplete for review.[9] EPA's chief complaint has been that the City's application, rather than looking at each of its 14 sewage plants individually to determine the best way to beneficially use or dispose of each plant's sewage sludge, merely compared incineration of all of the City's sludge with ocean disposal of all its sludge.

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[8] City of New York v. United States Environmental Protection Agency 543 F. Supp. 1084 (S.D.N.Y. 1981). See also Statement of Christopher J. Daggett, Region II Administrator United States Environmental Protection Agency, before the Subcommittee on Environmental Protection and the Subcommittee on Superfund and Environmental Oversight of the Senate Committee on Environment and Public Works, (Feb. 18, 1988) (attachment #3).

Furthermore, the single land-based alternative chosen by the City to compare with ocean-dumping -- incineration -- may well be one of the least satisfactory land-based alternatives from an environmental standpoint. For example, EPA's "Draft Strategy for Interim Implementation of Sludge Requirements in Permits Issued to POTWs" singles out POTWs that incinerate their sludge as priorities for permit issuance, out of concern over possible adverse human health and environmental effects. (See attachment #7).

In November, 1987, the EPA advised New York City that EPA would deny the City's permit application unless it was completed within 60 days. However, at the end of the 60 days, (Jan. 15, 1988), NYC still did not submit a complete plant-by-plant analysis of land-based alternatives. Instead, the City objected to the 60-day requirement and argued that it would need an additional three-year period to complete a plant-by-plant analysis of land-based alternatives.[10]

The City has proposed that it be given a 3-year permit to continue dumping all of its sludge, while it prepares the three year plant-by-plant study of land-based alternatives concurrent with the running of the 3-year permit!

Nothing in the record of the permit application reflects that NYC has considered either other cities' experience with sludge since the Camp Dresser & McKee

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[9] In November 1987, EPA advised the City that its application "lacks updated detailed information regarding sludge generation, transport and disposal, and fails to fully evaluate all of the alternatives to ocean disposal." Letter from Richard Caspe to New York City Department of Environmental Protection Commissioner Harvey W. Schultz (Nov. 23 1987) (attachment #6).

[10] "Response to EPA's comments (Jan. 15, 1988)"; Letter by NYCDEC Commissioner Harvey W. Schultz to Christopher Daggett Administrator, EPA Region II (March 25, 1988) (attachment #5).

Reports of 1978 and 1980, or new technologies for sewage sludge management.

Indeed, the City has even ignored its own consultants' 1978 and 1980 recommended plans for land-based alternatives as required by the original terms of its interim dumping permits.

NRDC believes that EPA Region II is leaning toward deeming the application complete and tentatively granting the permit for the three-year period which the City argues is necessary to enable the City to conduct its proposed study of land-based alternatives. NRDC has criticized the New York application for a special permit. We have corresponded and met with Mr. Caspe to express our view that, because New York's application remains incomplete despite the fact that the City has been given ample time to complete it, EPA ought to deny the application and compel New York to begin to seek alternative solutions to its sludge disposal problems.

III. NEW YORK CITY'S ALTERNATIVES TO OCEAN DUMPING

It is axiomatic that cleaner New York sludge will expand the range of beneficial use and safe disposal methods available. It is also axiomatic that industrial pretreatment is the best way to attack sludge contamination. Yet, New York City has not made the most of the pretreatment program as a sludge management tool.

A. New York's Pretreatment Program and NPDES Permits.

As members of this committee are aware, the industrial pretreatment program is an integral part of the Clean Water Act's pollutant control scheme. Industrial waste discharges to POTWs are to be pretreated in order to remove toxic pollutants that could interfere with POTW operations, injure plant workers, pass through to receiving waters or contaminate the POTW's sludge. New York City's 1978 study of alternatives to ocean dumping first pointed to the deficiencies in New York City's Industrial Pretreatment Program as a major obstacle to solving the City's sludge disposal dilemma. Both the 1978 study and a subsequent 1983 study concluded that, with full implementation of the pretreatment program for electroplaters and metal finishers, the sludge from eight of the City's then-twelve (now 14) POTWs could be put to beneficial use as a soil conditioner on farmland in New York State.[11]

In 1988, ten years later, New York City's pretreatment program is still far from that goal. A 1985 study conducted for the Office of Technology Assessment confirmed that "[New York] City tends not to refer specifically to positive effects of its pretreatment program in assessing its sludge disposal options. In fact, in assessing the feasibility of land disposal upstate, only scant reference is made" to the importance of pretreatment.[12]

New York City's pretreatment program was not approved by EPA until 1986.[13] While the program now has been given approval on paper, it still has not been implemented fully.

When New York City last did a compliance check of major industrial facilities in the Metropolitan area it identified approximately 650 Significant Industrial Users (SIUs) that contribute pollutant discharges to New York's POTWs. Those facilities include electroplaters and metal finishers, which are major sources of heavy metals that can contaminate sludge. Other facilities include chemical and pesticide manufacturers; drug manufacturers; photography labs; and printing/dyeing operations. An October 1987 summary of the City's pretreatment program summarized what the City had found as it assessed the status of these 650 or so facilities: about 150 facilities were thought to be in compliance with pretreatment requirements; about 80 facilities were found not to be in compliance, and New York City had no information about the compliance status of the remaining 400 or more SIUs.[14] In other words, about 77% of New York's Significant Industrial Users either were out of compliance or had a compliance status of "unknown" in 1987 -- nine years after New York first was urged to get its pretreatment house in order.

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[11] See Assessment of Ocean Waste Disposal Case Studies, prepared for the Office of Technology Assessment, Science Applications International Corporation, at 2-42 (Oct. 3, 1985) (SAIC Study).

[12] SAIC Study at 2-48.

[13] EPA, rather than New York State's Department of Environmental Conservation, has the authority to approve New York City's Pretreatment Program. New York State has not obtained approval to manage the State's pretreatment program, which places the State in violation of the Clean Water Act.

In implementing its pretreatment program, the City has focused almost entirely on the electroplaters and metal finishers. As of March 1988, it had verified compliance of only a small fraction of the City's electroplaters and had written legally binding "compliance directives" for an even smaller fraction of them.[15]

If the City's pretreatment program continues to be implemented at its present pace, it will be years before New York has even made its way through this one industry to ensure compliance with the national categorical standards -- much less implemented any more stringent local limits that might be appropriate to broaden the City's land-based sludge disposal options.

As discussed above, the 1978 and 1980 CDM studies concluded that by controlling toxic metals in its sludge New York could widen its land-based disposal options. But ironically, today New York points to the high levels of metal contamination in its sludge, foreclosing land disposal, as a reason why it need not impose local limits to clean up its sludge! The New York City Department of Environmental Protection stated in a March 1987 report that

> NYCDEP's pretreatment development study concluded in 1983 that . . . metals contained in the sludge did not interfere with the present method (i.e. ocean dumping) of disposal, but would interfere with its application of the sludge to agricultural land.[16]

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[14] Letter from Larry A. Klein, P.E., Chief, Industrial Wastes Control Section, to Barry Juran, Environmental Engineer, United States Environmental Protection Agency Region II, (Oct. 8, 1987).

[15] Letter from Edward Wagner, NYC Bureau of Wastewater Treatment, to Paul Molinari, EPA Region 2, March 9, 1988.

[16] New York City Department of Environmental Protection Industrial Wastes Control Program Technical Support Document No. 1, (Mar. 6, 1987).

Since high levels of metals contamination did not "interfere with" the City's chosen method of ocean disposal, New York found no basis for imposing stricter local limits on metals discharges![17]

Clearly, New York City has not made the most of the pretreatment program as a sludge quality control tool. Nor has full implementation of the pretreatment program ever been seriously factored into New York City's analysis to determine how intractable its sludge disposal problem really is.

B. The EPA's failure to issue regulations governing sludge management, use, and disposal.

In arguing that it is unable to properly evaluate available alternatives to ocean dumping of sewage sludge, New York points to EPA's failure to issue the national, uniform regulations establishing limits for toxic contaminants in sludge. New York claims that it cannot evaluate whether its sludge is clean enough for land application unless and until the national regulations have established acceptable contaminant levels.

We do not agree that the absence of the national sludge regulations justifies New York City's failure to evaluate land-based alternatives to ocean dumping. The absence of national regulations did not prevent New York from evaluating incineration as an alternative; nor should it be used as an excuse to avoid consideration of other land-based options. After all, nearly every other municipality in the nation has found a land-based alternative. But we do agree that EPA's failure to issue those national sludge regulations is becoming a national embarrassment. More important, it has left the public unprotected against potential hazards in sewage sludge for far too long.

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17. This same report concluded that metal finishers should not be subjected to more stringent local limits to protect water quality, either. The rationale: Even if all plants met the more stringent limits which the city had considered, there were so many other sources of toxics discharging to those waters that the "unacceptable total concentrations" of toxics was not attributable to the metal finishers or electroplaters alone. According to this logic, no complex pollution problem ever would be solved because no single discharger's action ever could have a significant enough effect on the total pollutant load.

In the 1977 Clean Water Act, Congress first mandated that sludge rules be issued within one year -- i.e., by 1978. Now, a decade later, EPA tells us that the lion's share of the most important sludge regulations, which will specify the levels of toxic contaminants that can be present in sludge, are still over three years away.

How did the sludge rules, due initially in 1978, get delayed so often and for so long? A review of the history leading up to the present impasse demonstrates how much time can be lost if EPA is not fully committed to the task.

In 1977 Congress first ordered EPA to propose and promulgate, within one year, national regulations identifying the various uses and disposal methods for sewage sludge, and identifying concentrations of toxic contaminants in sludge that would interfere with those disposal methods or beneficial uses.[18] Congress' goals were threefold: to encourage the beneficial reuse of sludge; to protect human health and the environment against exposures to hazards in contaminated sludge; and to ensure that industries who generate toxic pollutants bear the costs of treatment and disposal -- rather than the public, through higher costs to their publicly-owned (and often Federally-financed) treatment works.

Five years went by, in which EPA did virtually nothing to develop comprehensive national regulations. In 1982, the Agency set up a Task Force to "examine the problems of sewage sludge disposal and utilization, as well as the need for additional regulations,"[19] but no action ensued. In 1983, concerned over the Agency's total lack of movement, legislators inquired of EPA: what had happened to the regulations? When could Congress and the public expect to see the sludge rules?

Then-Administrator Ruckleshaus responded that he could commit to promulgating regulations for key pollutants

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[18] Clean Water Act Amendments of 1977, Pub. L. No. 95-217, Section 405(d).

[19] "Work Plan for Development of an Integrated Sludge Management Regulatory Program, Approved by the EPA Sludge Task Force," Feb. 17, 1984.

within two years.[20] That was in June of 1983. In drafting Clean Water Act amendments that year, Congress agreed to give EPA a total of eighteen months from the date of enactment to promulgation of the long awaited rules. In its 1983 Report, the Senate noted that "EPA officials testified that development of these [sludge] regulations *is now a high priority* and that *these deadlines can be met*."[21]

About one year later, another Congressional inquiry over EPA's continuing lack of progress elicited a different answer from Administrator Ruckleshaus. He reported in 1984 that the regulations would be developed in two parts: management regulations specifying how State programs should be run would be issued by May of 1985, and technical regulations setting actual contaminant levels and handling practices would be proposed in mid-1986.[22]

Once again, however, no regulations were forthcoming. EPA published a two-page Agency policy statement in the Federal register in June of 1984 -- but no regulations.[23] EPA published a glossy informational booklet about the uses and disposal of sludge, in September of 1984.[24] Still, no regulations -- although the booklet demonstrated that EPA had amassed a great deal of technical information about sewage sludge. This information should have enabled EPA to go forward with its rulemaking responsibilities.

In the 1987 Water Quality Act amendments Congress expressed its mounting frustration with EPA's failure to move on this issue, by adopting *new* deadlines for the sewage sludge management and technical regulations -- while leaving intact the preexisting 1978 deadlines as a message to the EPA. The Water Quality Act of 1987 established the following deadlines for action:

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[20] Letter from William Ruckleshaus to Senator Robert Stafford, (June 28, 1983).

[21] S. Rep. No. 233, 98th Cong. 1st Sess. 10 (Sept. 21, 1983)(emphasis supplied).

[22] Letter from William Ruckleshaus to Robert Stafford (May 22, 1984).

[23] "Notice of Agency policy on municipal sludge management," 49 Fed. Reg. 24358 (June 12, 1984).

[24] "Use and Disposal of Municipal Wastewater Sludge," United States Department of Environmental Protection (Sept. 1984).

1. Management regulations: Promulgation by December, 1986

2. Technical regulations: Round I (based on available information, and covering the first set of toxic pollutants): Promulgation by August 31, 1987

3. Technical regulations: Round II (for pollutants not identified in Round I): Promulgation by June 15, 1988.

The House-Senate Conference Report points out that

> "[t]hese new deadlines are intended to put E.P.A. on a schedule to correct its failure to meet the 1978 promulgation deadline and are not intended to excuse the agency from its failure to meet the original deadline... Agency officials informed the Congress over three years ago that there were at that time sufficient data to regulate comprehensively approximately twenty of the most common toxic sludge pollutants. The conferees intend these twenty to be regulated in the 1987 regulations.[25]

Despite this clear and unambiguous directive to regulate sewage sludge in the 1987 amendments, EPA has continued to demonstrate the same lethargy.[26] Since 1984, when the Administrator promised to get the management regulations out by 1985 and propose the technical regulations by mid-1986, we have identified at least six additional occasions on which EPA has promised that the rules would be out by a date certain

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[25] H. Conf. Rep. No. 1004, 99th Cong., 2d Sess. 160 (Oct. 15, 1986).

[26] In March of 1988, when it had become clear that simple statutory deadlines were not enough to spur EPA to action, NRDC filed suit against the agency for its failure to issue the sludge rules. Natural Resources Defense Council, Inc. v. Thomas, Civ. No. 88-2101 (E.D. Pa.) The case is still in litigation.

-- only to let the new deadlines slip.[27] At present, EPA has told NRDC that it does not plan to issue the technical regulations governing most disposal options (landfilling; land spreading; distribution and marketing, ocean dumping and incineration) until October of 1991 -- over four years after the new deadline in the 1987 Water Quality Act.[28] Thus, in less than two years since the 1987 Act was enacted, EPA's schedule for the first set of technical regulations has already slipped to four years beyond the statutory deadline! The management regulations (setting out requirements for State sewage sludge management programs) are scheduled to be issued in April of 1989 -- nearly two and a half years after they were due.

The public is deeply concerned about sewage sludge disposal, in the ocean and on land. Congress repeatedly has demanded comprehensive Federal regulations of sewage sludge. Yet, EPA continues to plod along at a glacial pace. New York City, and other municipalities and States that are trying to plan ahead to resolve sludge disposal problems and to exploit sludge as a beneficial resource, understandably are frustrated by EPA's inaction; the lack of certainty makes their jobs more difficult. Moreover, EPA's pace sends the states and municipalities the wrong message about the importance of this issue. Some have asked: why should we be in a hurry when EPA clearly is not?

---

[27] See Semiannual Rulemaking Agendas, as follows: 51 Fed. Reg. 14552 (April 21, 1986); 51 Fed. Reg. 38929 (October 26, 1986); 52 Fed. Reg. 14879 (April 27, 1987); 52 Fed. Reg. 40870 (October 26, 1987); 53 Fed. Reg. 14360 (April 25, 2988); Letter from Lawrence Jensen, Assistant Administrator for water, to staff of Senator William Cohen, July 20, 1987. In Responses to Interrogatories filed in NRDC's suit against EPA for failure to issue the sludge regulations, EPA has once again added onto its promulgation schedule -- this time, nearly two years were added to the projected promulgation date for the technical regulations, compared to the Regulatory Agenda published only two months previously! EPA responses to interrogatories and requests for production of documents, NRDC v. Thomas.

[28] EPA apparently plans to regulate sludge which is co-disposed in landfills along with municipal solid waste under Subtitle D of the Resource Conservation and Recovery Act. Those regulations are scheduled to be promulgated in December of 1989. But the subtitle D regulations will not include numeric limits on sludge toxics required by section 405(d) of the Clean Water Act.

C. New York City should consider other cities' experience.

The vast majority of this country's communities have never been able to utilize ocean dumping of sewage sludge, but have managed to dispose of their municipal wastes. In fact, several of the more innovative programs have helped to pay for themselves, while other emerging technologies have shown the potential to be profit-making ventures. What is their secret that seems so elusive to the administration of New York City?

The solution is no secret at all. New York must first find a way to eliminate toxic contamination from its sewage sludge. If New York can manage to bring the concentrations of those pollutants into line with agricultural standards, a whole world of disposal possibilities other than incineration and ocean dumping will open up.

Milwaukee, Wisconsin has been converting its sludge to a soil conditioner for the past 62 years. 62,000 tons of sludge annually are treated, dried, run through filters, tested for toxins, then bagged and shipped across the nation for use on lawns, shrubs and ornamental plants.

Seattle, Washington now ships sludge to forests where it is sprayed on saplings, increasing their growth rates substantially.

Chicago, Portland and Salem, Oregon regularly use their sludges to fertilize local farms and plant nurseries.

Thus, technologies that promote beneficial reuses of sewage sludge, consistent with Congress' intent, have been implemented by communities around the country. In addition, new methods to handle sewage sludge, while not proven, provide promise and should be examined. For example:

Houston, Texas recently sponsored a $150 million contract competition for the best sewage disposal method. The company that won will install a "deep well wet air oxidizing system" for the city. The process, highly refined over older and similar versions, utilizes the heat produced by decomposing bacteria in a deep well to break down and detoxify sludges. Unlike deep well injection, which leaves wastes in rock formations deep underground, it is alleged that this system retrieves all of the waste that it pumps into the well. The company claims that the resulting product is chemically inert when dried, and can be safely landfilled, and that their system is cheaper, cleaner and requires less space than traditional systems.

Another innovative sludge treatment system is currently being tested in Canada. Environment Canada has refined a process which produces usable fuel from raw sludge. The inventors hope to have a test facility in operation by 1989.

NRDC wishes to make it clear that we do not specifically endorse any one of these alternative methods as the solution to New York City's waste problem. We do believe, however, that the city must look to other cities' experiences, as well as to potential new technologies, for answers. As a first step towards any solution, New York should begin aggressively to speed up implementation of its pretreatment program.

IV. CONCLUSION

Although this urgent problem has existed for many years, the City has failed to make a good faith effort to find alternative methods of sludge use or disposal or to make the improvements in pretreatment which would facilitate such methods, as required by law. In its pending EPA permit application, the City has evaluated only one land-based alternative to ocean dumping -- incineration -- an alternative that is most expensive and may be the least environmentally satisfactory. The City's attitude is evident: ocean-dumping has been followed as the course of least effort and expense, and the ocean has been used for cheap waste disposal based on short-run economic considerations.

The City's dilatory tactics - failing to evaluate less costly land disposal methods in a timely manner, then seeking three more years of low-cost ocean dumping while it "studies" the matter - does not evidence a commitment to address this problem. The City should not be rewarded by further extensions of time.

Attachments to Testimony of The Natural Resources Defense Council, Inc. before the Subcommittee on Water Resources of the Committee on Public Works and Transportation, U.S. House of Representatives

1.a. Letter of May 16, 1988 from NRDC to USEPA Region II Administrator, Christopher Daggett, commenting on New York City's permit application.

b. Letter of June 29, from NRDC to USEPA Region II Director of Water Management Division, Richard Caspe, commenting on New York City's permit application.

2. Comments on draft State Pollutant Discharge Elimination System (SPDES) permits for 14 municipal treatment facilities, submitted by NRDC to the USEPA Region II, June 29, 1988.

3. Statement of Christopher J. Daggett, USEPA Region II Administrator, before the Subcommittee on Environmental Protection and the Subcommittee on Superfund and Environmental Oversight of the Senate Committee on Environment and Public Works, Feb. 18, 1988.

4. Court Order resultant from City of New York v. United states Environmental Protection Agency 543 F. Supp. 1084 (S.D.N.Y. 1981).

5. Letter of March 25, 1988 from NYCDEP Commissioner Harvey Schultz to USEPA Region II Administrator Christopher Daggett.

6. Letter of November 16, 1987 from U.S. EPA Region II Director of Water Management Division, Richard Caspe, to NYDEP Commissioner, Harvey Schultz.

7. "Draft Strategy for Interim Implementation of Sludge Requirements in Permits Issued to POTWs", U.S. EPA.

Attachment #1.a.

Natural Resources
Defense Council

122 East 42nd Street
New York, New York 10168
212 949-0049

BY MESSENGER

May 16, 1988

Mr. Christopher J. Daggett
Regional Administrator USEPA,
Region II
26 Federal Plaza
Room 900
New York, NY 10278

Dear Mr. Daggett:

Because the Natural Resources Defense Council, Inc. (NRDC) considers the expeditious phase-out of ocean dumping an important step toward securing a clean and productive marine environment, NRDC has been monitoring federal regulation of sewage sludge ocean dumping in the New York metropolitan area.

In particular, we have reviewed New York City's January, 1987 application and supplements for a special permit to continue dumping sewage sludge from all fourteen of NYC's sewage treatment plants at the 106 mile ocean disposal site.

Our review of New York's application for a special permit discloses that the application is legally deficient in a number of ways and that the application therefore cannot be considered complete. 40 C.F.R. §221.1 In addition, NRDC believes that serious questions of compliance with the Ocean Dumping Act would be raised by continued dumping without prompt completion of the City's application followed by proceedings thereon in accordance with valid EPA regulations.

We would be most grateful for the opportunity to meet with you to discuss NRDC's concerns both before EPA takes action on NYC's application and before EPA responds to New York City's proposal to remedy the deficiencies of its application by conducting a three-year study of alternative disposal methods, in exchange for the grant of a special permit to continue dumping during the study period.

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I will call your office to try to arrange a convenient time to meet with you.

Sincerely,

Lynne T. Edgerton

Lynne T. Edgerton
Bill Schrenk
Senior Project Attorneys

LE/aw

NR
DC

Attachment #1.b.

Natural Resources
Defense Council

[illegible]
[illegible]
[illegible]

BY MESSENGER

June 29, 1988

Mr. Richard L. Caspe
Director, Water Management Division
USEPA, Region II
26 Federal Plaza
New York, NY 10278

Dear Mr. Caspe:

At our meeting with you on May 26, 1988, we discussed some of our concerns about deficiencies in New York City's application for a special permit for ocean-dumping of sewage sludge, and we expressed our support for the expeditious phase-out of ocean dumping as an important step toward a clean and productive marine environment. We appreciate the opportunity to discuss these issues with you.

At our meeting, you stated that EPA was considering two alternatives: 1) whether to deny the permit based primarily on the inadequacies of New York City's application which were identified in your letter of November 23, 1987 to Commissioner Schwartz, or 2) whether to deem the application complete and tentatively to grant the permit for the three-year period which the City argues is necessary to enable the City to conduct its proposed study of land-based alternatives.

After studying the issues more thoroughly, we conclude that the City's application is not legally complete, even for the grant of a "short-term" (3 year) special permit, because of its failure to meet the requirements for applications for permits under Section 102 of the Ocean Dumping Act that are contained in 40 C.F.R. §221.

We have serious questions regarding deficiencies in the City's permit application, in addition to its critical failure to evaluate land-based alternatives. These include questions regarding the application's chemical analyses and other scientific information, its undue reliance on data and findings contained in the City's

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1984 application for a permit to dump at the 12-mile site, and its failure to deal in any way with the charges by fishermen's organizations that ocean dumping at the 106-mile site is the cause of reduced catches and diseased fish. We do not believe that the application can be considered complete under EPA's own regulations, and we believe that the permit requested should be denied.

The City argues that it cannot properly evaluate land-based alternatives (other than incineration) because the issues of use and disposal of sewage sludge on land will be affected by the standards for toxics content and management practices in the long-awaited regulations governing management, use and disposal of sewage sludge to be issued by EPA pursuant to Section 405 of the Clean Water Act.* However, if as argued by the City, the absence of these regulations is a drawback, it applies equally to evaluation of any methods of sludge disposal. The City cannot maintain in good faith that it is impossible to evaluate land-based alternatives (other than incineration) because of the absence of sludge regulations and, at the same time, in its application purport to compare ocean dumping and incineration despite the absence of these regulations.

It is also noteworthy that the land-based alternative (incineration) chosen by the City to compare with ocean-dumping may well be one of the least satisfactory land-based alternatives from an environmental standpoint. See EPA's "Draft Strategy for Interim Implementation of Sludge Requirements in Permits Issued to POTWs", Attachment 1, page 1.

Consequently, a decision to grant a special ocean-dumping permit based on New York's assertion that incineration is the only "feasible long-term, land-based management alternative," that ocean-dumping is "safer" from a human health standpoint, or that ocean-dumping and incineration are "equivalent" from an environmental effect standpoint would be arbitrary and capricious.

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* The regulations are the subject of a "deadline" suit brought by NRDC in March 1988. EPA's most recent estimate of the dates for promulgation of the regulations are December 1989 for co-disposal in landfills and October 1991 for other disposal methods, including ocean dumping and incineration.

There should be no further delay in the City's preparation of a comprehensive study of all land-based alternatives for the use and disposal of sewage sludge, based on the wide experience of authorities throughout the country in land-based use and disposal of sewage sludge (including revenue-producing methods) and on the City's own work in preparing plans for land-based alternatives as required by the original terms of its interim dumping permits.

Since the 1977 amendments to the Clean Water Act, it has been Congressional policy to encourage the beneficial use and reuse of sewage sludge. The law and regulations require that categorical pretreatment standards and local limits be established to facilitate such use and reuse. Both the Ocean Dumping Act and the Clean Water Act require the evaluation of alternative means of sludge disposal, treatment or recycling, including pretreatment to reduce the presence of sludge contaminants that can adversely affect sludge quality and interfere with beneficial use or disposal options. EPA's consideration of ocean-dumping permit applications, as well as its regulations governing management, use and disposal of sewage sludge, must be in accord with this legislation.

Any decision regarding use and disposal of sewage sludge, in connection with the City's ocean-dumping permit application or otherwise, is also critically affected by the City's industrial pretreatment program, which is implemented by the POTWs' NPDES permits (for which renewal applications are now pending).* While progress has recently been made in the City's pretreatment program, serious deficiencies remain, including the absence of local limits to protect against aquatic toxicity and sludge contamination and inadequate monitoring and enforcement of categorical standards. These deficiencies contribute to the contamination of New York's sludge.

In conclusion, although this urgent problem has existed for many years, the City has failed to make a good faith effort to find alternative methods of sludge use or disposal or to make the improvements in pretreatment which would facilitate such methods, as required by law. In its pending application, the City has evaluated only one land-based alternative to ocean dumping - the alternative that is most expensive and may be least environmentally satisfactory . The City's attitude is evident: ocean-dumping should be followed as the course of least effort and expense, and the ocean should be used for cheap waste disposal based on short-run economic considerations.

---

* NRDC filed comments with NYDEC on the pending SPDES renewal application for the City's POTWs'. A copy of these comments will be sent to your office.

The City's dilatory tactics - failing to evaluate less costly land disposal methods in a timely manner, then seeking three more years of low-cost ocean dumping while it "studies" the matter - does not evidence a commitment to address this problem. The City should not be rewarded by further extensions of time.

NRDC will continue to take an active part in the consideration of all three of these inseparable aspects of the City's plans for use and disposal of its sewage sludge: the ocean-dumping permit application, EPA's regulations governing sludge management, use and disposal, and the City's pretreatment program and NPDES permit applications.

Yours sincerely,

Lynne T. Edgerton

Lynne T. Edgerton,
Senior Project Attorney

Bill Schrenk LE

Bill Schrenk

LE/aw

cc: Rebecca Hanmer, Acting Assistant Administrator for Water, USEPA
Martha Kirkpatrick, Director, Sludge Management Task Force, USEPA
Richard Witt, Esq., Office of General Counsel, USEPA

Attachment #2

Natural Resources
Defense Council

1350 New York Ave., N.W.
Washington, DC 20005
202 783-7800

June 27, 1988

Barbara B. Rinaldi
Regional Permit Administrator
Region 2
New York Department of Environmental Conservation
47-40 21st Street
Long Island City, New York 11101

Dear Ms. Rinaldi:

The Natural Resources Defense Council is a national organization with over 74,000 members, of whom more than 9400 reside in New York State. NRDC is dedicated to protecting public health and the environment against pollution, and to preserving natural resources for current and future generations. We appreciate the opportunity to comment on the draft State Pollutant Discharge Elimination System (SPDES) permits for the 14 municipal treatment facilities in the City of New York. We also appreciated your willingness to grant an extension of time, until June 27, for submission of our comments. Public participation in the preparation of SPDES/NPDES permits is a critical element of the Clean Water Act in general, and the permitting process in particular. See Clean Water Act Sec. 101(e); 40 C.F.R. Part 25; 40 C.F.R. §§ 123.25(a)(10) and 124.10.

NRDC's comments focus on critical Clean Water Act and Ocean Dumping Act issues which are of concern for all fourteen publicly owned treatment works whose permits are up for renewal. The staff of the Natural Resources Defense Council looks forward to working with you as you address the problems of aquatic toxicity reduction, pretreatment program implementation, local limits development and enforcement, and sludge disposal. Please do not hesitate to contact us if we can provide further comments or suggestions.

Sincerely,

Jessica C. Landman
Jessica C. Landman
Robert W. Adler
NRDC Water Program
Attorneys

Lynne Edgerton by JCL
Lynne Edgerton
NRDC Coastal Program
Attorney

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INTRODUCTION

The State of New York has long been charged with the duty to eliminate toxic and other pollutants from POTW discharges. That duty has been reemphasized and strengthened by the 1987 amendments to the Clean Water Act, which require the State to identify "toxic hotspots" and to develop and implement individual control strategies to eliminate these hotspots over the next few years.

The National Pollutant Discharge Elimination System (NPDES) permits issued to the fourteen sewage treatment plants in New York City should serve as the principal means for achieving water quality goals by translating national technology-based standards and state water quality standards into meaningful limitations on point source discharges of toxic and other pollutants.

NPDES permits also are the principal vehicles for implementation of the Industrial Pretreatment Program. Each POTW's permit must implement any local limits on industrial users necessary to protect the POTW, its employees, water quality and sludge quality.

Finally, the NPDES permit is the primary statutory and regulatory mechanism for preventing discharges of toxics from industrial users from contaminating New York City's sewage sludge. Monitoring requirements on industrial users' effluent to determine the sources of sludge contamination; monitoring sludge for toxics; any local limits necessary to control industrial discharges of toxic contaminants passing through the POTW into the sludge; and actual sludge contamination limits and management practices, all must be spelled out in the NPDES permit.

NRDC is concerned that deficiencies in the fourteen draft permits for the New York City POTWs will impair the State's ability to fulfill these important Clean Water Act requirements. In particular, the permits as drafted lack both numerical limits for individual toxic pollutants of concern, and aquatic toxicity limits to protect receiving waters against whole effluent toxicity. The permits also fail to spell out specific pretreatment program requirements. While some pretreatment program elements are cross-referenced in the permits, those cross-references are presented in a way that frustrates meaningful public review and comment on their adequacy. Finally, the permits do not contain adequate sludge monitoring or control requirements, or even a reopener clause, to ensure that New York's sludge is safe for composting, landfilling, land spreading or incineration.

By failing to take steps to improve sludge quality through the NPDES permitting process, New York all but guarantees that its ongoing sludge disposal crisis -- which has led to the dumping of over 6 million wet tons of sludge per year in the ocean -- will remain unresolved. In turn, this deficiency will place New York in continuing violation of the Ocean Dumping Act and attendant regulations, 33 U.S.C. § 1411 et seq. and 40 C.F.R. Part 221, which require that New York explore alternative means of disposal, including land-based means (such as recycling or landspreading), in its application for an ocean dumping permit. It is completely inconsistent for New York City to argue that it has no viable alternative to ocean dumping of sludge because of the presence of toxics in sludge, while at the same time failing to take all available steps to reduce or eliminate this contamination.

These deficiencies would be more amenable to correction if the State of New York would assume responsibility for its Pretreatment Program, as it is indeed required to do under the Clean Water Act.

I. New York State Must Assume Responsibility for its Pretreatment Program.

The Clean Water Act (CWA) allows individual States to assume responsibility for issuance of NPDES permits. CWA Sec. 402(b); 40 C.F.R. Part 123. However, a State wishing to act as the NPDES permitting authority is required also to assume responsibility for its pretreatment program. CWA Sec. 402(b)(8) and (9); 40 C.F.R. § 403.10.

New York was delegated authority to manage its NPDES/SPDES program in 1975. See 52 Fed. Reg. 45824 (Dec. 2, 1987). The State was required to submit an approvable Pretreatment Program proposal to EPA no later than March of 1979 (or, if amendment of State law was necessary, by March of 1980). 40 C.F.R. § 403.10(b). To date, New York has not obtained approval for management of its Pretreatment Program. New York's failure to seek and obtain approval for its Pretreatment Program constitutes grounds for withdrawal of the State's delegated authority to manage its NPDES program, under Section 402(c)(3) of the Act, 40 C.F.R. § 123.63, and 40 C.F.R. § 403.10(c) of the General Pretreatment Regulations.

Congress established the requirement that States operating their own NPDES permit programs also manage their Pretreatment Programs because it recognized that dividing responsibility for pretreatment implementation and NPDES permitting would lead to administrative chaos. The legislative history states that

> The requirement that States which are assuming the [§402 NPDES] permit programs have the authority to require development of local pretreatment programs...

> is aimed at assuring that States have the necessary authority for insuring efficient implementation of pretreatment standards, whether they be standards developed at the local, State or Federal level.

Sen. Rept. No. 370, 95th Cong. 1st Sess. at 59, reprinted in A Legis. Hist. of the Clean Water Act of 1977, Comm. on Env't and Pub. Wks., Comm. Print 14 (1977 Legis. Hist.) at 692.

New York's current situation, in which New York State writes the fourteen POTWs' NPDES permits but EPA's Region II is the Pretreatment Program Approval Authority, is both illegal and administratively cumbersome. The POTWs report to two masters: the NYDEC and the EPA. And the industrial users report to three masters: NYCDEP, NYDEC, and EPA. Moreover, while certain parts of the NPDES permits may not relate directly to pretreatment, nearly every element of a POTW's NPDES permit is influenced -- or should be influenced --by the POTW's Pretreatment Program.

The present division of responsibility between New York State and Region II for permitting and for primary pretreatment oversight decreases the likelihood that permitting and pretreatment will be properly integrated.

It is our understanding that New York is in the process of completing an application for Pretreatment Program approval, and is planning to submit the application in the near future. The State of New York should make it an urgent priority to submit the application, and to obtain approval for management of its Pretreatment Program. We remind you that the State is subject to having its NPDES program approval withdrawn for failure to do so. We encourage the State to urge EPA to review the application, once submitted, in a timely manner.

Obtaining approval is only the beginning. The State of New York must provide adequate staff and resources for management of its Pretreatment Program once it has become the Approval Authority. Just as failure to assume responsibility for pretreatment is grounds for withdrawal of NPDES program delegation, so too is failure of the State to administer the Pretreatment Program in compliance with regulatory and statutory requirements. Those requirements include a directive that "[t]he Director [i.e., the chief administrator of the State NPDES program] shall assure that funding and qualified personnel are available to carry out the authorities and procedures" of the Pretreatment Program. 40 C.F.R. § 403.10(f)(3).

II. The NPDES Permits Do Not Comply With the Toxic Hotspot Control Requirements or the Water Quality-Based Permitting Requirements of the Clean Water Act.

Under the Clean Water Act, States are required to implement both technology-based and water quality-based controls on the discharge of toxic and other pollutants to surface waters, through the NPDES permit process. Water quality standards must be implemented in NPDES permits through *enforceable*, end-of-pipe effluent limits. 33 U.S.C. §§ 1311(b)(1)(C), 1313(d), 1342(a) and (b); *see* *United States Steel Corp. v. Train*, 556 F.2d 822, 830 (7th Cir. 1977), *citing EPA v. California ex rel. State Water Resources Control Board*, 426 U.S. 200, 205 (1976); *Trustees for Alaska v. EPA*, 749 F.2d 549, 557 (9th Cir. 1984). This requirement applies to discharges to all waters that exceed water quality standards.

The program for water quality-based permit limits for *toxic* pollutants has developed more fully in recent years. In 1984 EPA published its Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants. 49 Fed. Reg. 9016 (March 9, 1984) (EPA Policy). The EPA Policy provides for the establishment of NPDES permit limits that *control both individual toxic pollutants and whole effluent toxicity:*

> Where State [water quality] standards contain numerical criteria for toxic pollutants, ... *NPDES permits will contain limits as necessary to assure compliance with these standards. In addition to enforcing specific numerical criteria, EPA and the States will use biological techniques and available data on chemical effects to assess toxicity impacts and human health hazards based on the general standard of "no toxic materials in toxic amounts*."

* * *

> Where violations of water quality standards are identified or projected, *the State will be expected to develop water quality-based effluent limits for inclusion in any issued permit.* Where there is a significant likelihood of toxic effects to biota in the receiving water, *EPA and the States may impose permit limits on effluent toxicity and may require an NPDES permittee to conduct a toxicity reduction evaluation.*

Id. at 9017 (emphasis added).

In addition to this longstanding requirement that individual toxics and whole effluent toxicity be controlled through the NPDES permit, the 1987 amendments to the Clean Water Act established new, specific deadlines by which States must identify and control "toxic hotspots."

Under Section 304(l) of the amended Act, States must identify those segments of State waters that are threatened or impaired by toxic pollutants, and the dischargers that are contributing to the problem or potential problem. The States then must develop individual control strategies (in the form of water quality-based NPDES permits for the dischargers contributing to the problem) in order to bring impaired waters into compliance with State water quality standards or to protect threatened waters against such impairments. CWA Sec. 304(l)(1)(A)-(D).

Each State was required to submit a preliminary list of impaired waters to EPA by April 1, 1988. "Final Guidance for Implementation of Requirements Under Section 304(l) of the Clean Water Act As Amended," EPA OWRS/OWEP, March, 1988 (304(l) Final Guidance) (copy attached). Each State's final list and accompanying individual control strategies must be submitted to EPA no later than February 4, 1989. Id. Finally, the strategies must be fully implemented (i.e., toxics must be controlled) no later than February 4, 1992. CWA Section 304(l); 304(l) Final Guidance at 35.

New York submitted its preliminary 304(l) list as an adjunct to its 1988 "305(b)" water quality report (which is required to be submitted to EPA every two years under Section 305(b) of the CWA). New York's "short list" of waterbodies subject to the individual control strategy requirements of § 304(l) includes only four segments -- none of them in the New York metropolitan area. In our view, this list is woefully inadequate and does not satisfy the requirements of the Act, because it omits numerous segments known to be substantially impaired by the discharge of toxics from point sources. The narrative 305(b) Report makes it abundantly clear that the POTWs at issue here are discharging toxics to waters which should be classified as toxic hotspots because they are impaired or threatened by point source discharges of toxic pollutants. Consequently, the State's 304(l) "short list" must be expanded, and individual control strategies (i.e., water quality-based permits) must be written for each of the POTWs. The "New York State Water Quality 1988" report (hereafter the "305(b) Report) states that:

> The drainage basins discharging directly into the Atlantic Ocean, Long Island Sound, or New York Harbor comprise 1,406 square miles inhabited by more than ten million persons.... Needless to say, this is the most densely developed area of the State with all of the attendant problems related to high concentrations of wastewater discharges from municipal, industrial and other activities.

> There are several serious water quality problems throughout this basin. In the New York City metropolitan area in particular, water resources continue to be characterized by relatively low dissolved oxygen levels, high coliform concentrations, isolated thermal pollution, and *high levels of heavy metals*, oil, and grease.
>
> Primary factors contributing to water quality problems throughout the basin include *municipal and industrial discharges*...
>
> ... The most significant pollutant loadings to western Long Island Sound are the New York City treatment plants on the Upper East River.

305(b) Report at III-154 (emphasis supplied).[1]

The 305(b) Report indicates that heavy metals and organics, which are toxic both to humans and to aquatic life, are a problem in the New York City area. "DEC tributary sampling for toxic heavy metals found *a significant number of values exceeding both detection levels and criteria* in Fresh Kills Creek, the Arthur Kill, Coney Island Creek, Flushing Creek, the Bronx River, the Hutchinson River, Newtown Creek, and the Gowanus Canal. *Volatile halogenated organics have also been detected* in all monitored tributaries..." *Id.* at III-156.

Moreover, trends in heavy metals concentrations have not been positive. The 305(b) Report states that, in recent water quality studies of New York Harbor, there has been some improvement in conventional pollutant parameters but "similar trends have not been noted with respect to heavy metals whose concentrations remain high." *Id.* at III-156 to 157. Ambient concentrations of four toxic metals (copper, lead, mercury and nickel) in New York City's waters consistently exceed State water quality standards. In total, 5 of 9 metals monitored by NYCDEP are violating State standards. With the exception of lead, there has been no improvement in metals levels since regular New York City monitoring for these metals began in the early 1970s. *See* City of New York DEP, Bureau of Waste Water Treatment, "New York Harbor Water Quality Survey: 1986" (Nov., 1987), at 11-13, I-19, Q-6.

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[1] *Compare* Addendum A, which is a map from New York's 305(b) Report showing water quality impairments in the area, *with* Addendum B, which is a map showing the locations of the POTWs whose permits are being renewed. Source for Addendum B: City of New York, Department of Environmental Protection, Industrial Pretreatment Program (Task 8: Treatment Plant Tolerance), New York: Metcalf & Eddy of New York, Inc., June, 1984, p.20.

In addition to the 305(b) Report, the New York DEC's assessment of the toxic wasteload allocation for new York Harbor, developed in 1986, reported that "[a] detailed review of the available data indicates that about 60 different toxic chemicals are currently being discharged into New York Harbor waters by New York point sources." "Interim Procedures, New York Harbor - Wasteload Allocation Analysis," NYDEC, June, 1986 (Wasteload Allocation Analysis). A copy of the list of these discharged toxics is attached to these comments as Addendum C.

In sum, the New York City area POTWs are discharging their effluent into waters that are impaired or threatened due to the presence of toxic pollutants being contributed, in significant part, by the POTWs themselves. Under Section 304(l) of the CWA, as well as under the Act's preexisting requirements, New York must develop water quality-based permits for these facilities to address toxic pollutants. Moreover, these permits must address both toxic "priority pollutants" and all other pollutants of concern, including whole effluent toxicity. See, e.g., EPA's Final Guidance at 9.[3] For example, many of the waters receiving these POTW wastes are subject to severely depressed dissolved oxygen conditions that violate applicable water quality standards. The BOD and nutrient loadings from these POTWs contribute significantly to this problem, and the POTWs thus should be subject to water quality-based BOD limits and nutrient removal requirements.

Despite these requirements, the draft permits for New York's POTWs contain neither numerical effluent limitations nor whole effluent toxicity limits for toxic or other pollutants (other than residual chlorine, which is in fact toxic to aquatic life and requires control, but which is not listed as a "priority pollutant" under the Act).

The Wasteload Allocation Analysis, based apparently on concerns about monitoring data, the lack of a wasteload allocation model, and/or deficiencies in State numerical criteria, recommended that "[w]ater quality based limits for toxics not be developed or incorporated in permits at this time for New York Harbor." Wasteload Allocation Analysis at 2 (emphasis added). Nothing could be further from the truth. For the reasons spelled out below, the NYDEC can and must implement water quality-based controls on toxic pollutants discharged from the New York City POTWs in this round of permitting.

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[3] NRDC will be furnishing copies of these comments to the EPA Headquarters and Regional staff who are charged with ensuring that: 1) the State's 304(l) list of impaired waters is complete; and 2) all toxic hotspots are being addressed through appropriate individual control strategies.

1. Numerical Permit Limits for Individual Toxic Pollutants

The draft permits contain influent, effluent and sludge *monitoring* requirements for heavy metals. But monitoring alone does not fulfill the requirements of the Act. If the discharges from these facilities contain metals -- and particularly if the receiving waters are exceeding water quality standards for these metals -- then *actual permit limits are required* that will, either alone or in combination with other controls on point and nonpoint sources, bring those waters into compliance with applicable water quality standards. Moreover, if metals concentrations in the receiving waters of a POTW currently exceed water quality standards, then the POTW's end-of-pipe discharge must itself be *at or below the level of applicable water quality criteria* -- particularly in the absence of a comprehensive wasteload allocation model. In other words, no dilution capacity can be assumed to exist in the receiving waters when those waters exceed applicable standards for the pollutant in question. More important, a wasteload allocation analysis should be performed to allocate pollutant load reductions among *all* point sources that cause or contribute to water quality problems.[3] Simultaneously, New York State's nonpoint source control program under Section 319 of the Act should be designed to reduce nonpoint source loadings of the pollutants in question with the *combined* goal being compliance with water quality standards. Even in the absence of a wasteload allocation, however, *these* dischargers cannot be permitted to contribute further to water quality impairment.

Where the State lacks numerical criteria for specific pollutants of concern, EPA's Quality Criteria for water provide an appropriate reference point for water quality-based permitting. The State can set permit limits based on its narrative "no toxic in toxic amounts" water quality standard, using the EPA criterion as a scientifically supportable basis for determining whether the toxic is present in toxic amounts. Permit Writer's Guide to Water Quality-Based Permits for Toxic Pollutants, U.S. EPA Office of Water, EPA 440/4-87-0005 (July 1987) at 1-2.

Five more years of monitoring data for a limited universe of pollutants, which will be collected pursuant to these draft permits, do not satisfy the requirements of Section 304(l); nor does mere monitoring protect public health or the environment against toxic exposures.[4]

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[3] Where the State does not properly perform and apply wasteload allocations, EPA is required to step in and do so itself. *Scott v. City of Hammond*, 741 F.2d 92[illegible] (7th Cir. 1984).

2. Whole Effluent Toxicity Limits

Both the 1984 National Policy and the 304(l) Final Guidance make clear that NPDES permits must limit both individual toxics of concern and whole effluent toxicity, when a discharger's whole *effluent exhibits acute* or chronic toxicity to aquatic life. National Policy, 49 Fed. Reg. at 9017; 304(l) Final Guidance at 8, 9, 34.

Despite this clear mandate, the draft permits for New York City's POTWs fail to establish whole effluent toxicity limits. Nor do they mandate a toxicity reduction evaluation. Instead, the permits contain a "toxicity testing program" provision that is inadequate to meet the requirements of the Act for a number of reasons:

First, the draft permits do not provide a date certain by which toxicity testing must begin. Instead, they say that "upon completion of testing and confirmation of a suitable marine toxicity testing program by NYCDEP which is approved by NYSDEC, the marine toxicity test requirement ... shall be implemented by the permittee within 90 days of written notification by NYSDEC."

This provision would appear to leave it to the permittee, the NYCDEP, to propose a marine toxicity testing program approvable by the State. It should be obvious that this approach is a prescription for delay.

The New York State Manual for Toxicity Testing specifies testing methods which can be implemented immediately through these permits.[5] If NYCDEP believes that the State's approved methodologies are inappropriate for any of the fourteen POTWs because of unusual site-specific differences in representative species or some other factor, then the NYCDEP should bear the burden of proposing an alternative testing procedure on its own time.

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[4] In many instances, New York's Wasteload Allocation Analysis reports that calculated levels of toxics (presumably estimates based on modelling or other approaches) are below water quality standards, while actual observed levels exceed the standards. This pattern is repeated for cadmium; lead; mercury; silver, and zinc. Wasteload Allocation Analysis at 1-2. This pattern suggests that the calculation models employed by the State require review and revision.

[5] Alternatively, EPA has published "Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms", EPA/600/4-85/013 (March, 1985); chronic values can be calculated using appropriate safety factors.

Second, the permits as drafted fail to mandate toxicity reduction evaluations. Instead, they call for "review of the monitoring data" before a decision is made either to require additional testing or to commence a toxicity reduction evaluation. And most important, the permits are silent on actual toxicity limits.

The 304(l) final guidance makes clear that "EPA... feels that TREs are most effective in conjunction with a permit limit as a target level which the TRE is designed to achieve." 304(l) Final Guidance at 9 (emphasis added). If appropriate, the permitting authority may need to develop and insert in the permit a compliance schedule for various steps in the process, including testing; toxicity reduction evaluation; permit reopening to include specific pollutant limits, if identifiable toxics are found to be responsible for the toxicity problem; and actual compliance with a whole effluent toxicity limit. Id. All of these steps must be completed within the statutory timeframe of Section 304(l) of the Act. Id.

NYSDEC must revise the POTWs' permits to include numerical limits for individual toxics known to be present in the POTWs' discharges; TRES, and whole effluent toxicity limits -- not simply a leisurely toxicity testing regiment.

3. Reporting of Monitoring Data

The draft permits call for the reporting of conventional pollutant monitoring results on the facilities' signed Discharge Monitoring Reports (DMRs), but call for separate reporting of monitoring results for heavy metals and nutrients. The permits direct the permittees to report monitoring results for these substances on the Monthly Wastewater Treatment Operator's Reports rather than on their DMRs.

We oppose the illegal exclusion from DMRs of toxic metal and nutrient data reporting. DMRs are signed, sworn statements carrying significant weight in enforcement actions. (While the permits as drafted do not contain limits for these parameters, failure to conduct and report the results of monitoring requirements under an NPDES permit is itself actionable.) Moreover, it will be far more difficult for interested persons (including NYSDEC officials) to track down monitoring results in two separate databases. We see no legitimate reason to exclude the metals and nutrient testing results from the POTWs' DMRs.

III. The Permits Fail to Regulate Sludge and Sludge Contaminants

A 1985 study of New York's sewage treatment plants, conducted for the Office of Technology Assessment, found that toxic metals loadings to New York City sludge were occurring at the rate of thousands of pounds per day:[6]

Copper	950 lbs/day
Chromium	600 lbs/day
Nickel	150 lbs/day
Zinc	1,360 lbs/day
Cadmium	50 lbs/day

In fact, it is the high concentration of toxic heavy metals present in New York's sludge that is in large measure responsible for the City's present dilemma regarding sludge disposal. The City's most recent annual report on its pretreatment program states that "metals contained in the sludge did not interfere with the present method [of disposal; i.e., ocean dumping], but would interfere with its application to agricultural land." NYCDEP, Industrial Wastes Control Program, Technical Support Doc. No. 1, March 6, 1987 (DEP Report) at 2.[7]

A. Interim Permitting for Sludge

As you know, the Clean Water Act requires that EPA promulgate regulations establishing safe levels of toxic contaminants for various specified sludge use and disposal options. Those regulations are behind schedule.* However, in the interim before those regulations are issued the CWA requires EPA to take immediate interim action "to protect public health and the environment from any adverse effects which may occur from toxic pollutants in sewage sludge." CWA Sec. 405(d)(4).

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[6] Assessment of Ocean Waste Disposal - Case Studies; SAIC International, Prepared for the Office of Technology Assessment (October 3, 1985) (OTA Study) at 2-11, Table 2.4.

[7] NRDC strongly disagrees with the notion that high levels of metals contamination in sludge do not "interfere" with ocean dumping. It may be true that no regulations presently in place forbid ocean dumping of this highly contaminated sludge, but the existence of this regulatory vacuum does not signify that ocean dumping of contaminated sludge is environmentally safe.

The DEP Report also takes the position that, since controlling metals discharges at electroplating facilities will not in and of itself result in compliance with applicable water quality standards, no further local limits should be imposed on these facilities. Id. at 5-7. This is a ludicrous approach to toxics regulation. Taken ~~to its logical~~ conclusion it would result in a complete halt to all efforts to clean up New York's waters, since no single control alone could achieve compliance with standards.

To address these interim responsibilities, EPA recently published its "Draft Strategy for Interim Implementation of Sludge Requirements in Permits Issued to POTWs" (Interim Strategy) (copy attached). As the EPA has stated, "interim implementation [of environmental protection against sludge contamination] commenced from the date of passage of the [1987] amendments... Congress made it clear that sludge control was not to wait for final technical standards." Id. at 2.

According to EPA's Interim Strategy, "[a]ll NPDES permits issued or reissued to POTWs after February 4, 1987 are to contain some basic sludge conditions." Id. at Attachment 1 (emphasis supplied). "If a facility is judged to be a priority for sludge permitting, the permit will include additional requirements developed on a case-by-case basis."

The Interim Strategy requires that all reissued POTW permits include the following basic requirements:

1. A provision that the facility must comply with all current Federal and State laws and regulations, including a reopener provision for when the technical standards are promulgated;

2. A requirement to notify the permitting authority of any significant changes in the POTW's sludge use or disposal practices; and

3. Sludge quality monitoring requirements.

Id. (emphasis supplied).

Boilerplate language for sludge permits is provided in Appendix A to the Interim Strategy.

The NYSDEC draft permits do contain some sludge monitoring and notification language. However, they do not contain reopener clauses such as the one proposed in Appendix A; they should be amended to add such clauses.

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* NRDC has filed suit against EPA for failure to issue the regulations in accordance with the statutory schedule. NRDC and Steven Bloom v. Lee M. Thomas, Administrator, No. 88-2101 (U.S. D.Ct., E.D. Pennsylvania).

B. The New York POTWs Are Priority Facilities for Sludge Permitting

In addition to these minimal requirements, and of particular importance to New York City, the Interim Strategy requires that permits issued to priority POTWs include additional requirements -- management practices and/or numerical limits -- developed on a case-by-case basis as appropriate to deal with the individual problems at the priority facility. Id.

The Interim Strategy states that "[a] facility is a sludge permitting priority if it has a known or suspected problem with its sludge quality or use/disposal practices, or there are other reasons warranting more comprehensive sludge permit conditions." Id. at Attachment 1. This description precisely fits the circumstance of the New York City POTWs, which are ocean dumping their sludge. EPA takes the position that POTWs that ocean dump their sludge are priority facilities for sludge permitting purposes.[9] This means that permit-writers should include the basic permitting requirements spelled out above, and should immediately address specific sludge contamination problems on an individual, case-by-case basis in the facilities' NPDES permits. Moreover, New York city itself has maintained for many years that its sludge use and disposal options are limited, in part, by sludge contamination. Thus, it is obvious that New York City has a "known or suspected problem with its sludge quality or use/disposal practices . . . ."

Important consequences flow from the determination that these POTWs are priority facilities for sludge permitting. Id. at Attachment 3, pp. 2-3. The Interim Strategy requires that the interim sludge requirements must be Federally enforceable. The NYSDEC must take several steps:

1. Give public notice that the permits will contain sludge requirements to implement §405 of the CWA, and these requirements therefore will be Federally-enforceable pursuant to Section 309 of the Act;

2. Submit the permits to the Regional EPA office for review, to determine whether they meet the requirements of § 405; and

3. Submit the permits to the Region, which must affirmatively approve them by issuing a letter or certification to the State DEC. Id. at 3.

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[9] Telephone conversation with Martha Kirkpatrick, Program Manager, Sludge Task Force, Permits Division, Office of Water Enforcement and Permits, EPA; June 24, 1988.

If NYSDEC either can not or will not participate in the interim implementation of sludge requirements under §405 of the Act, EPA will be responsible for issuing sludge requirements. Id. In New York, where the State is the NPDES authority, the EPA would issue a "sludge rider" to the POTWs' NPDES permits. Id. at 4. Obviously, however, it would be far better for NYDEC itself to coordinate sludge management and other NPDES permitting requirements.

New York City's POTWs are presently ocean dumping their sludge under a court order. Both the London Dumping Convention and the Ocean Dumping Act require a finding of need before ocean dumping can be permitted. Existing Ocean Dumping Act regulations establish requirements for a comprehensive evaluation of potential reduction, treatment and disposal options for the waste that is proposed to be dumped, before that need can be said to exist. See 40 C.F.R. § 227.14 - .16. Under these regulations, an ocean dumping permit may issue only upon demonstration that:

> [t]here are no practicable improvements which can be made in process technology or in overall waste treatment to reduce the adverse impact of the waste on the total environment...

and

> [t]here are no practicable alternative locations and methods of disposal or recycling available, including without limitation, storage until treatment facilities are completed, which have less adverse environmental impact or potential risk to other parts of the environment than ocean dumping...

Id.

It is clear that improvements in waste treatment -- in the form of a fully operative Pretreatment Program with appropriate local limits -- would "reduce the adverse impact [of New York City sludge] on the total environment" and might make available to the City other disposal options now closed off because of sludge contamination. The Office of Technology Assessment's Overview of New York City's Waste Treatment Works found that from 1% to 69% of the loadings of toxic metals to POTWs originated in industrial facility discharges.[10] These discharges can and must be controlled through imposition of local limits.

New York cannot in good faith assert that there are no available land-based alternatives for disposal of its metalsladen sludge when those high levels of contaminants have not been addressed through pretreatment.

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[10] OTA Study at 2-15, table 2.5. The DEP Report calculates that from 5% to 57% of POTW plant loadings originate in electroplating facilities for three key metals. DEP Report at 5.

The City's January 15, 1987 ocean dumping application purported to analyze available alternative disposal options. This analysis concluded that incineration was the only available land-based alternative, but that incineration was too costly. The application claimed that other land-based alternatives had excessive "adverse environmental impact or potential risk to other parts of the environment" that made them less environmentally desirable than ocean dumping. Application at 14.

Land-based alternatives other than incineration could be available to New York City's POTWs if the sludge they generated had sufficiently low levels of toxics. The first step in achieving lower levels of contaminants in the sludge is to impose permit limits on sludge contaminants of concern, through the NPDES permit. That is the responsibility of NYSDEC; if NYSDEC will not write these permit limits and management practices into the NPDES permits, then EPA can and must step in to draft a "sludge rider" pursuant to the Interim Strategy, as discussed above.

In the absence of the Federal technical criteria for sludge, New York must look to its own State regulations and to other States for guidance regarding appropriate contaminant limits for the pollutants of concern in New York's sludge. Appropriate limits may vary from facility to facility in the metropolitan area, and the alternate disposal method appropriate to each POTW.[11]

As with whole effluent toxicity, a monitoring, testing and contaminant control strategy, with compliance milestones on an enforceable schedule, may be the appropriate permitting approach for controlling contaminants in sludge. For example, in addition to specific sludge contaminant limits, a permit might contain requirements that the POTW identify all industrial sources of toxic metals and impose stringent local limits to reduce metals contamination, -- i.e., a sludge quality-related local pretreatment limit. That is precisely the sort of approach that Congress intended when it provided that the pretreatment program must protect against interference with sludge disposal options. 1977 Leg. Hist. at 272 (Conference Report); 691-92 (Sen. Rept.);

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[11] EPA will be publishing, within the next 2-4 weeks, a guidance document summarizing existing State sludge regulations and providing suggestions for case-by-case permitting pending completion of the national technical regulations. Copies of "Guidance for Writing Case-By-Case Permit Limits for Sludge" can be obtained from Tom Wall, U.S. EPA, Permits Division, EN-336, 401 M Street, SW, Washington, DC 20460.

132 Cong. Rec. S16426-28 (daily ed. Oct. 16, 1986) (comments of Sen. Stafford).

IV. The POTWs' NPDES Permits Should Include Additional, More Detailed Pretreatment Program Requirements

Section IV of the draft POTW permits, "Pretreatment Program Implementation Requirements," sets out cursory requirements that the permittees must meet to implement their pretreatment programs. We support inclusion in the NPDES permits of the requirement that the permittee "shall implement the Industrial Pretreatment Program in accordance with" the pretreatment program submission and the Federal General Pretreatment Regulations, 40 C.F.R. Part 403.

However, without a more complete explanation in the permit of the contents of the program submission and amendments/addenda to that submission, it is not possible for members of the public to comment on the adequacy of the permits' pretreatment requirements. We question whether this technique of incorporation by reference of the pretreatment submission and various related correspondence can satisfy the public participation requirements of the NPDES permitting regulations. Even if the various documents listed in Part IV.A. of the draft permits were submitted for public comment along with the Pretreatment Program submission, as they were required to be under the General Pretreatment Regulations, 40 C.F.R. § 403.11(b), they are not readily available for public comment as part of this NPDES permit review proceeding under 40 C.F.R. §§ 123.25 and 124.11.

Although the draft permits state that "[l]ocally derived limitations shall be defined as pretreatment standards under Section 307(d) of the Act,"[11] we are not able to evaluate the local limits themselves for their adequacy based on this statement or the list of correspondence that is incorporated by reference.

We recommend that the pretreatment conditions in these permits be spelled out, both to allow for public participation and to ensure that the permittees themselves are fully aware of the conditions to which they -- and their industrial users -- are subject. In particular, we recommend that:

1. All industrial users should be listed in the permit, along with any categorical pretreatment standards to which they are subject and/or any local limits to which they are subject;

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[11] The General Pretreatment Regulations require that a POTW's NPDES permit contain all the pretreatment program conditions as enforceable conditions of the NPDES permit. 40 C.F.R. § 403.8(c).

2. All testing, monitoring and reporting requirements applicable to industrial users should be listed in the permit; and

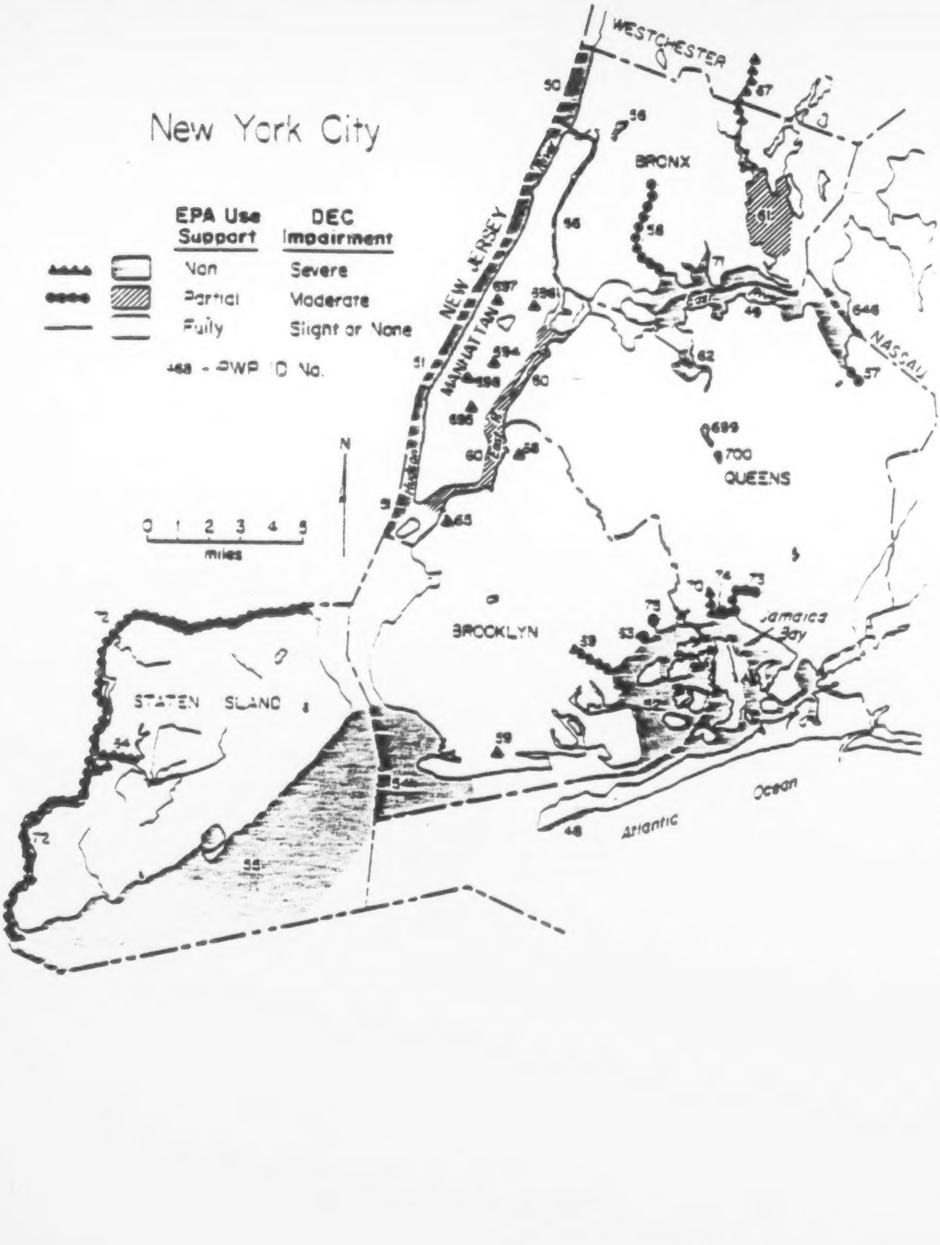
3. Enforcement mechanisms, including a brief description of what they are, how they are imposed, and what actions or inactions will trigger enforcement, should be spelled out in the permit.

CONCLUSION

The NPDES permits for the New York metropolitan area's POTWs are linchpins for environmental quality in the region. Air and water quality will be adversely affected for years to come if inadequate permits are written. In addition, recreational values and the livelihood of the fishing and shellfishing industry depend on the quality of the water in the estuary and near the 106-mile site.

NRDC strongly urges the NYSDEC not to treat reissuance of these permits as an occasion to conduct "business as usual." Instead, the State of New York should seize this valuable opportunity to integrate water quality protection, sludge reuse and recycling, and pretreatment program goals into one well-managed program, as Congress intended.

ADDENDUM A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EPA Use Support
DEC Impairment
Non
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WESTCHESTER
NEW JERSEY
MANHATTAN
BRONX
QUEENS
BROOKLYN
STATEN ISLAND
NASSAU
Jamaica Bay
Atlantic Ocean
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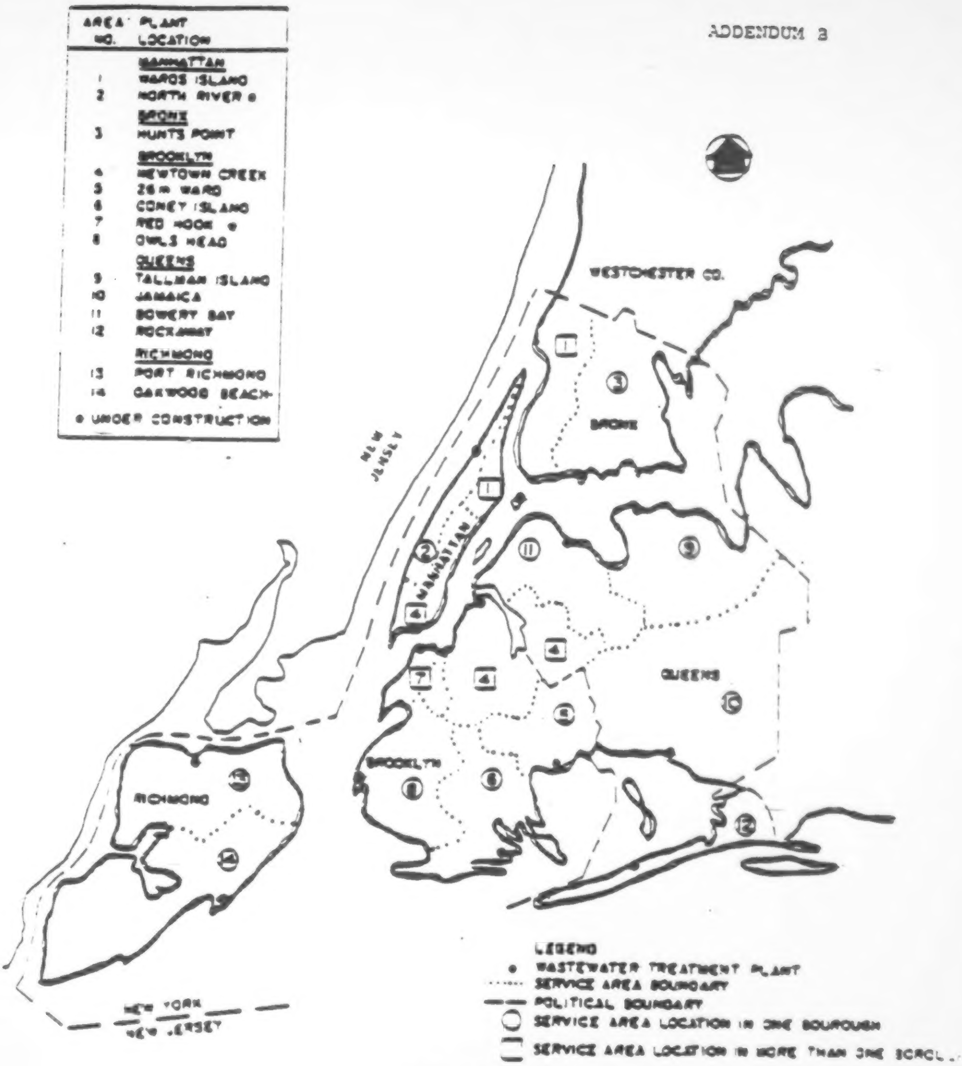
ADDENDUM B



AREA NO.	PLANT LOCATION
	MANHATTAN
1	WARDS ISLAND
2	NORTH RIVER •
	BRONX
3	HUNTS POINT
	BROOKLYN
4	NEWTOWN CREEK
5	26th WARD
6	CONEY ISLAND
7	RED HOOK •
8	OWLS HEAD
	QUEENS
9	TALLMAN ISLAND
10	JAMAICA
11	BOWERY BAY
12	ROCKAWAY
	RICHMOND
13	PORT RICHMOND
14	OAKWOOD BEACH

• UNDER CONSTRUCTION

WESTCHESTER CO.
NEW JERSEY
BRONX
MANHATTAN
QUEENS
BROOKLYN
RICHMOND
NEW YORK
NEW JERSEY
1
3
1
11
9
2
4
4
4
7
10
5
6
8
12
13
14
LEGEND
• WASTEWATER TREATMENT PLANT
SERVICE AREA BOUNDARY
POLITICAL BOUNDARY
SERVICE AREA LOCATION IN ONE BOUROUGH
SERVICE AREA LOCATION IN MORE THAN ONE BOROUGH

FIGURE 2.1

LOCATIONS AND DRAINAGE BASINS OF
NEW YORK CITY TREATMENT PLANTS

Source: City of New York Department of Environmental Protection, Industrial Pretreatment Program (Task 3: Treatment Plant Tolerance), New York: Metcalf & Eddy of New York, Inc., June 1984, p.20.

ADDENDUM C

TABLE 1

TOXICS DISCHARGED BY NEW YORK STATE SOURCES

1	Antimony	35	Tetrachloroethane
2	Arsenic		Tetrachloroethylene
3	Boron		
4	Beryllium	36	Trichloroethene
5	Bromide		Trichlorothylene
6	Cadmium	37	Toluene
7	Chromium	38	Xylene
8	Copper	39	1,1-Dichloroethene
9	Cyanide	40	1,2-Dichloroethane
10	Fluoride	41	1,1,1-Trichloroethane
11	Iron	42	1,1,1-Trichlorofluoromethane
12	Lead	43	trans 1,2-Dichloroethene
13	Magnesium	44	trans 1,2-Trichloroethane
14	Manganese	45	bis(2-ethyl hexyl) phthalate
15	Mercury	46	Butyl benzyl phthalate
16	Nickel	48	Di-Ethyl phthalate
17	Selenium	49	Di-Methyl phthalate
18	Silver	50	Di-n-Butyl phthalate
19	Vanadium	51	Di-n-Octyl phthalate
20	Zinc	52	trans 1,2-Dichloroethene
21	Benzene	53	trans 1,2-Drichloroethane
22	PCB	54	Aldrin
23	Sulfide	55	alpha-BHC
24	Lithium hydorxide	56	beta-Endosulfan
25	Tributyl tin-oxide	57	delta-BHC
26	Chloroform	58	gamma-BHC
27	Ethylbenzene	59	Endrin aldehyde
28	Methylene Chloride	60	4,4-DDT
29	Napalene	61	Isopropanol
30	Pentachlorophenol		
31	Phenol		
32	4-Nitro phenol		
33	P-Chloro-m-cresol		
34	Tetrachloroethane		

LIST OF ADDENDA

Addendum A - Map showing water quality impairment in the area from N.Y. State Water Quality 1988 Report (Submitted Pursuant to Section 305 (b)

Addendum B - Map showing Locations and Drainage Basins of NY City Treatment Plants from City of New York, Dept. of Environmental Protection, Industrial Pretreatment Program

Addendum C - Table showing Toxics Discharged by NY State from Interim Procedures, NY Harbor Wasteload Allocation Analysis, NYDEC, June 1988

Final Guidance for Implementation of Requirements Under Section 304(l) of the Clean Water Act as Amended, EPA, March 1988

Strategy for interim Implementation of Sludge Requirements in Permits Issued to POTWs, Rebecca Hanmer, EPA

Attachment #3

STATEMENT OF
CHRISTOPHER J. DAGGETT
REGIONAL ADMINISTRATOR, REGION 2
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
AND THE
SUBCOMMITTEE ON SUPERFUND AND ENVIRONMENTAL OVERSIGHT
OF THE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

U.S. SENATE

February 18, 1988

Good morning, I am Christopher J. Daggett, Regional Administrator for Region 2 of the U.S. Environmental Protection Agency. Our region includes the States of New York and New Jersey, Puerto Rico and the U.S. Virgin Islands. I am pleased to be here today and I thank the Subcommittees for the opportunity to discuss our region's perspective on the issue of ocean disposal of municipal sewage sludge.

My testimony will review briefly the recent history of the disposal of municipal sludge in the ocean in Region 2, including a discussion of the phase-out of the former 12-mile disposal site, the status of current dumping at the 106-mile site and our review of permit applications for that site, our program to monitor the 106-mile site, and the status of the Ocean Dumping Surveillance System.

Phase-Out of the 12-Mile Site

The 12-mile sewage sludge disposal site had been in use since 1924. In recent years, it was used by nine dumpers--the City of New York and Westchester and Nassau Counties in New York, and six sewerage authorities in New Jersey. The volume of material dumped was about 8 million wet tons in 1987.

EPA attempted to halt ocean disposal of sludge by the end of 1981 under the terms of the Marine Protection, Research, and Sanctuaries Act (MPRSA). However, in an action brought by New York City and later duplicated in New Jersey, the Courts ruled that EPA could not halt the dumping without seeking detailed and comprehensive information on alternative disposal methods and their impacts, in order to evaluate the impacts and availability of land-based alternatives. Since that decision, the sludge dumpers have been operating under Court Order rather than MPRSA permits.

As a result of scientific research, environmental monitoring, and public participation, EPA announced, in May, 1984, its decision to designate the 106-mile site for sewage sludge disposal, and its tentative determination to deny the petitions to redesignate the 12-mile site. In April of 1985, we formally denied the petitions to redesignate the 12-Mile Site and subsequently established with the dumpers Court-ordered schedules for moving their disposal operations to the Deepwater Municipal Sewage Dump site--the 106-Mile Site--by the end of 1987. The last load of sludge--from Middlesex County Sewerage Authority in New Jersey--went to the 12-Mile Site this past New Year's Eve. As of January 1, 1988, all disposal is now taking place at the 106-Mile Site under the existing Court Orders.

We believe the 106-Mile Site is preferable to the 12-Mile Site. This area was selected because of its depth, distance from shoreline, and its capacity to disperse industrial wastes and municipal sludge. Moreover, it does not include significant commercial or recreational fishery resources; it is outside of shipping lanes; it is remote from coastal areas; and it is off the edge of the Continental Shelf (a preference stated explicitly in MPRSA).

Status of 106-Mile Site

In July of 1986, EPA notified the nine sludge generators that they would be required to submit complete MPRSA permit applications for use of the 106-Mile Site. We requested that these applications be submitted no later than January of 1987. The existing Court Orders control the disposal operations until such time as EPA has received and acted upon complete permit applications.

We informed the applicants that, under the Act, ocean dumping permits may not be issued unless the applicant can demonstrate that there are no alternative land-based disposal methods available that are technically feasible, economically reasonable and likely to have less adverse impact on the total environment and human health than ocean disposal.

We received applications from the New York sludge generators on January 15, 1987; however the six New Jersey authorities requested an additional six months to submit applications that would include a thorough evaluation of all possible disposal alternatives on an authority-by-authority basis. On August 1 of 1987, the New Jersey Authorities submitted one application on behalf of all six.

In November, Region 2 completed its review of the permit applications; we found them to be incomplete in their evaluation of alternatives. We sent letters to the applicants that read, in part:

> "Federal regulations require that a permittee continue to research all feasible alternatives to ocean dumping, including practicable improvements in the process technology to reduce adverse sludge characteristics and alternative locations or methods for sludge disposal or recycling before a permit can be issued."

The applications we had received showed that studies for alternate sludge disposal methods had been suspended in 1981. Our letter continued:

> "Therefore, your application does not contain a current or viable analysis of land-based methods and technologies of sewage sludge disposal as they exist today."

We gave the applicants until January 19 of this year to submit this additional information. The applicants did submit additional information on incineration, landfilling and/or composting on January 19, and the Region is in the process of reviewing it.

Monitoring at the 106-Mile Site

As part of our site management responsibilities, EPA has prepared a monitoring plan for the 106-Mile Site. Its objectives are to assess the actual and potential impacts of sludge disposal on the marine environment at the site, and to assess compliance with permit conditions. Data collected will be used in making decisions regarding continued designation of the site, the status of disposal permits, and the design of future monitoring programs.

Much information on chemical and physical characteristics and baseline conditions at the 106-Mile Site already exists from studies performed during the past decade. Between 1984 and 1986, for example, EPA conducted five baseline studies at the site. These data were used to develop the current monitoring plan and will be used as the baseline against which new results will be compared.

In August of 1987, EPA conducted a survey at the 106-Mile Site to track the dispersion and settling of the sludge plumes. Four ocean dumping events were monitored. Preliminary findings were that the plumes are extensively mixed in the upper 20 meters of the water column while being transported horizontally by strong currents. The plumes were often tracked well outside the designated boundaries of the dump site, for a period of up to eight hours, or ten miles outside of the site's boundaries. Water quality impacts are still being analyzed. A second plume tracking survey is scheduled for later this month to compare winter and summer oceanographic conditions.

Designation of this site expires in March of 1991. Redesignation will depend, in part, on whether there is a continuing need and on the results of this monitoring. An advisory committee comprised of EPA, the National Oceanographic and Atmospheric Administration (NOAA), state agencies, the sludge generators, and other interested parties is being formed to evaluate the data on a continuing basis and make recommendations to EPA. If necessary, use of the site can be modified or suspended.

Ocean Dumping Surveillance System

Another aspect of the use of the 106-Mile Site is the development and installation by the Coast Guard of an Ocean Dumping Surveillance System (ODSS). In 1981, EPA stated that all vessels transporting sludge to this site must have the ODSS installed and operating when available. In November, 1987 EPA, working in cooperation with the Coast Guard, notified the dumpers that the ODSS must be installed by May 15, 1988. Vessels not outfitted will not be authorized to transport sludge unless "unforeseen events" arise.

The ODSS devices consist of an onboard computer that communicates with a computer at the Coast Guard station on Governors Island. The onboard computer, assisted by the Loran C navigation system, reveals latitude and longitude, thus tracking the vessel location. Sensors in the hull detect when the dumping operation takes place.

The goal is to outfit 12 of the 21 current sludge vessels by May 15--enough capacity to handle all the sludge for a time. This is an ambitious timeframe. Due to contractual arrangements, the number of units available to the Coast Guard for installation prior to May 15 will be limited. Those vessels that do not have installations by May 15 will be required to have them as soon as the Coast Guard has the ODSS units available.

The Coast Guard is financing the construction of these devices at a cost of approximately $25,000 per unit. The sludge permittees are responsible for making dry-docking arrangements, at a cost of $30,000-$35,000 per vessel.

??!!!
Why is C.G. footing the bill?

Post-1991 Disposal

Finally, you asked that I comment on proposals for prohibiting the disposal of sewage sludge in the ocean after 1991.

The need for ocean disposal of sewage sludge after 1991 will be evaluated in the context of the Agency's current policy:

(1) We will, as an overall principle, protect the oceans from significant adverse effects of waste disposal. We will particularly assure that they are not used for "cheap" waste disposal as a matter of short run economic considerations alone.

(2) In any specific case we will allow ocean disposal of a waste only if the applicant can show that no practicable alternatives are available that have less impact on the total environment. EPA will apply a rule of reason in determining practicability.

(3) For the long run, we will actively encourage environmentally beneficial apperoaches such as waste minimization, recycling, or reuse.

Thank you for your attention. I will be pleased to address any questions you may have at this time.

§§§

Attachment #4

80-1677

ORIGINAL

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK
---x

CITY OF NEW YORK,

Plaintiff,

-against-

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY; ANNE M. GORSUCH, as Administrator of the United States Environmental Protection Agency; and RICHARD T. DEWLING as Acting Regional Administrator, United States Environmental Protection Agency, Region II,

Defendants.
---x

FINAL JUDGMENT

80 Civ. 1677 (ADS)

U. S. DISTRICT COURT
FILED
NOV 4 1981
S. D. OF N. Y.

WHEREAS this Court on April 14, 1981, filed an Opinion granting plaintiff New York City's motion for summary judgment, the motion having been brought pursuant to Rule 56 of the Federal Rules of Civil Procedure; and

WHEREAS the Court issued its Amended Revised Opinion on September 2 , 1981; and

WHEREAS the Court instructed New York City to file a proposed judgment implementing the Opinion and defendants, the United States Environmental Protection Agency et al. ("EPA") to respond to this proposed judgment; and

WHEREAS the Court directed in its opinion that final judgment in this matter must specify that the 1981 deadline for ocean dumping set forth in § 102 of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended, 33 U.S.C. § 1412a. ("MPRSA") shall remain in effect, but only for that ocean dumping which may "unreasonably degrade" the ocean environment at a particular ocean dump site in view of all relevant statutory criteria; and

WHEREAS the parties have informed the Court that New York City has initiated an application with the EPA for a Special permit under the Marine Protection, Research, and Sanctuaries Act, 33 U.S.C. § 1401 et seq. (hereinafter "the MPRSA") authorizing the ocean disposal of the City's sewage sludge beyond December 31, 1981; and

WHEREAS the parties have further informed the Court that New York has filed a petition with EPA seeking, inter alia, that EPA designate, pursuant to 40 C.F.R. Part 228, the site at 40° 22' 30" N to 40° 25' 00" N 73° 41' 30" W to 73° 45" 00" W (the "12 mile site") as available, after December 31, 1981, for the ocean disposal of sewage sludge which does not unreasonably degrade the environment (hereinafter "New York City's petition"); and

WHEREAS the parties have further informed the Court that EPA intends to consider, in deciding New York City's petition, the factors set forth in section 102(c) of the MPRSA, 33 U.S.C. § 1412, and 40 C.F.R. Part 228; and

WHEREAS the parties have further informed the Court that EPA intends to publish a request for comment in the Federal Register on the issues raised by New York City's petition and provide for a comment period of at least 60 days duration; and

WHEREAS the parties have further informed the Court that EPA intends to solicit at the same time comment on its proposed action with respect to the designation of the deepwater site at 38° 40' 00" N to 39° 00' 00" N to 72° 00' 00" W to 72° 30' 00" W (the "106 mile site") for the ocean disposal of materials, including sewage sludge; and

WHEREAS the parties have further informed the Court that EPA intends to issue a final decision on New York City's application for an ocean dumping permit following EPA's issuance of a final determination on New York City's petition; and

WHEREAS the City, upon expiration of its Interim ocean dumping permit, may not have the authority, in the absence of a court order or final permit issued by EPA, to continue ocean dumping of sewage sludge while EPA considers both New York City's petition ar the City's application for an ocean dumping permit;

NOW therefore, on motion of the City of New York, and in the absence of opposition by EPA, it is hereby

ORDERED, ADJUDGED AND DECREED as follows:

1. EPA's regulations governing the issuance of ocean dumping permits (40 C.F.R. Part 227) are remanded for revision by the Agency in accordance with applicable law. The revised regulations may not establish a conclusive presumption of unreasonable degradation of the environment based solely upon a finding that a permit applicant's sludge violates the environmental impact criteria set forth at Subpart B of 40 C.F.R. Part 227 and shall require permit applications to be evaluated in light of all relevant criteria set forth in Section 102(a) of the MPRSA, 33 U.S.C. Section 1412a. Provided that nothing in this order restricts the right of EPA to revise, in whole or in part, its regulations relating to the issuance of ocean dumping permits in any manner consistent with applicable law, nor does anything in this order require EPA to designate a site for ocean dumping of sewage sludge in violation of its criteria for site designation. contained in 40 C.F.R. Part 228 and section 102(c) of MPRSA.

& must revised

2. Prior to revision of the regulations, EPA shall review permit applications in a manner consistent with applicable law and may use its current regulations in evaluating permit applications except insofar as they establish a conclusive presumption of unreasonable degradation to the environment based solely upon a finding that a permit applicant's sludge violates the environmental impact criteria set forth at Subpart B of 40 C.F.R. Part 227.

3. EPA will evaluate New York City's pending application for a Special ocean dumping permit in accordance with the terms of paragraph 2 and may request any additional information with regard to such application which the Agency determines is reasonably required to determine whether such permit may be issued. In addition, New York will prepare an application for a Special permit at the 106 mile site if directed by the Agency and shall supply such information as may be reasonably required to evaluate preliminarily

such application pending final action on the City's petition and the Agency's rule-making with respect to the 106 mile site.

4. For the period from the date of entry of this judgment until EPA publishes its final action on New York City's petition, EPA is enjoined from taking any enforcement action against New York City with respect to the City's ocean dumping of sewage sludge so long as such dumping is accomplished in accordance with the conditions of the City's last ocean dumping permit (No. II-NY-009), issued January 6, 1981, other than that part of Special Condition 7 of the permit that requires New York City to construct onshore facilities for the disposal of sewage sludge.

5. If EPA by its final rule declines to designate the 12-mile site for further ocean disposal of sewage sludge, New York City shall retain its full right and discretion, unaffected by any of the terms of this judgment, to seek judicial review of such decision in a manner consistent with applicable law. This Court shall retain jurisdiction over this matter for the purpose of hearing and determining any such supplemental complaint by the City against EPA, including any request for preliminary and/or final injunctive relief which the City may demand.

6. If EPA by its final rule declines to designate the 12 mile site for further ocean disposal of sewage sludge, New York City, in the absence of a judicial stay, will take all steps necessary for a rapid and orderly removal of dumping from the 12 mile site to such other locations as are then designated by EPA (see 40 C.F.R. Part 228). If, within 2 weeks of any such decision by EPA not to designate the 12 mile site, the parties have been unable to agree on a schedule for the rapid and orderly removal of New York City dumping operations

to such locations as are then designated by EPA for sewage sludge disposal, the issue of an appropriate schedule may be submitted by either party to the Court, or a special master if one is appointed. In devising such a schedule, the economic and technical feasibility of reasonably expeditious relocation of the City's dumping operation to such sites as may be designated by EPA in accordance with the statutory criteria set forth in section 102(a) of MPRSA shall be considered.

7. If, pursuant to paragraph 6, New York City removes its sludge dumping operation from the 12 mile site to such other site or sites as are designated by EPA, EPA is enjoined from taking enforcement action against the City for the City's ocean dumping so long as the dumping is accomplished in accordance with the conditions of permit No. II NY 009 referenced in paragraph 4, as modified by EPA by letter to the Court and the City to reflect any reasonable changes due to the change in dump site. The preceding sentence, if it becomes applicable, shall remain in effect until EPA's final action on New York City's permit application.

what is final action

8. If EPA by final rule grants New York City's petition, New York City shall be permitted to dispose of its sludge at the 12 mile site, consistent with the terms of the designation and in accordance with the conditions of permit No. II NY 009 referenced in paragraph 4, during the period that EPA is considering New York City's pending ocean dumping permit application. In the event the EPA's designation of the 12 mile site limits the site's availability for all or part of New York City's sludge, the provisions of paragraphs 6 and 7 shall apply to so much of New York City's sludge as could no longer be dumped at the 12 mile site.

Dated: New York, New York

, 1981

SO ORDERED:

November 2 1981

Abraham D. Sofaer

ABRAHAM D. SOFAER

JUDGMENT ENTERED: 11/2/81

Raymond F. Burghardt

Clerk

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

CITY OF NEW YORK,
Plaintiff

-against-

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY; ANNE M. GORSUCH, as Administrator of the United States Environmental Protection Agency; and RICHARD T. DEWLING, as Acting Regional Administrator, United States Environmental Protection Agency, Region II,

Defendants.

AMENDMENT ON CONSENT
TO
FINAL JUDGMENT

80 Civ. 1677 (ADS)

WHEREAS, this Court on November 2, 1981 issued a Final Judgment in this case; and

WHEREAS, on April 1, 1985, the United States Environmental Protection Agency ("EPA") denied the petitions of the City of New York ("the City") and others to redesignate the ocean dump site known as the "12-mile site", and

WHEREAS, the City has agreed to not appeal the EPA's denial of its petition, and

WHEREAS, paragraph 6 of the Final Judgment provides in part that if EPA by its final rule declines to designate the 12-mile site for further ocean disposal of sewage sludge, the City will take all steps necessary for a rapid and orderly removal of dumping from the 12-mile site to such other locations as are then designated by EPA, and

WHEREAS, the City and EPA have agreed on a schedule for the rapid and orderly removal of dumping to the Deepwater Municipal Sludge Site, located at 40° 22' 30" N to 40° 25' 00" N; 73° 41' 30" W to 78° 45' 00" W, ("the Deepwater Site"),

Now THEREFORE, it is hereby ORDERED, ADJUDGED and DECREED on consent that the FINAL JUDGMENT dated November 2, 1981 shall be and hereby is amended by the addition of the following paragraphs:

9. For the period from the date of entry of this Amendment to the Final Judgment until the City completes its removal of dumping activities to the Deepwater Site, EPA shall not take any enforcement action against New York City with respect to the City's ocean dumping all of the municipal sludge generated at all of its sewage treatment plants, including the North River and Red Hook Sewage Treatment Plants, so long as such dumping is accomplished both (1) in accordance with the conditions of the City's last ocean dumping permit (No. II-NY-009), issued January 6, 1981, other than that part of Special Condition 7 of the permit that requires the City to construct on shore facilities for the disposal of municipal sludge, and (2) in accordance with the Final Judgment, as amended herein.

10. The City shall comply with the following condition and schedule for the removal of sludge dumping to the Deepwater Municipal Sludge Dump Site:

I. By April 7, 1986, the City commenced the dumping at the DeepWater Municipal Sludge Dump Site of all sludge generated at the City's Newtown Creek Sewage Treatment Plant in addition to other sludge generated from other City treatment plants which would comprise 10% of the City's total annual quantity of sludge on a wet ton basis. The City shall continue to do so and shall not use the 12-mile site for dumping this sludge.

II. Schedule for removing to the Deepwater Municipal Sludge Dump Site the dumping of all other sludge generated at the City's sewage treatment plants:

- a. By May 7, 1986, the City shall advertise for bids on a contract for the design and construction of the vessels needed to haul all of the City's sludge to the Deepwater sludge.
- b. By June 19, 1986, the City shall award the contract.
- c. By July 16, 1986, the City shall order the work to commence under the contract.
- d. By June 8, 1987, the first vessel shall be completed and 40%[1] of the City's municipal sludge shall be dumped at the Deepwater Site.

1/ The 40% figure shall include the sludge from the Newtown Creek Sewage Treatment Plant. The % figure is based on the total annual quantity dumped in wet tons.

e. By August 31, 1987, the second vessel shall be completed and 75%[2] of the City's municipal sludge shall be dumped at the Deepwater Site.

f. By November 20, 1987, the third vessel shall be completed and 100%[3] of the City's municipal sludge shall be dumped at the Deepwater Site. After this date, no further dumping of sludge by the City shall take place at the 12-mile site.

11. Not later than 15 days following any schedule step deadline in paragraph 10, supra, the City shall mail to EPA a notice of compliance or non-compliance with the deadline. If non-compliance is reported, the City shall state the reason for non-compliance, the date on which it expects to comply with the requirement, and the steps it is taking to insure that the remainder of the schedule is met. When the City has completed the requirement that was the subject of a notification of non-compliance, it shall mail notice to EPA within seven days of completion of the requirement.

12. If the City and EPA agree that the schedule should be adjusted due to justifiable delays reported by the City pursuant to paragraph 11, the schedule shall be revised by letter to the Court from both parties. If within thirty days of receipt by EPA of notification by the City of non-compliance with a

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2/ The 75% figure shall include the sludge from the Newtown Creek Sewage Treatment Plant. The % figure is based on the total annual quantity dumped in wet tons.

3/ The 100% figure shall include the sludge from the Newton Creek Sewage Treatment Plant. The % figure is based on the total annual quantity dumped in wet tons.

schedule deadline pursuant to paragraph 11, the City and EPA cannot agree that the schedule should be adjusted, either party may submit to the Court the issue of whether the schedule should be modified and, if so, to what extent it should be modified. Unless and until the Court rules on such submission, the schedules set forth in paragraph 10 shall continue in effect and the EPA may seek enforcement of the schedule established in this Amendment on Consent to Final Judgment or may proceed under the provisions of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended, 33 U.S.C. 1401 et seq.

13. The discharge rate for dumping sludge at the 12-mile site by the City may be modified by EPA by letter to the Court and to the City, if the City provides a basis acceptable to EPA for such modification. Such modified discharge rate would continue in effect only until a permit is issued to the City by EPA for ocean dumping municipal sludge or until November 20, 1987, whichever comes first.

Dated: New York, New York

, 1986

UNITED STATES DISTRICT JUDGE

THE UNDERSIGNED HEREBY AGREE TO THE FORM AND ENTRY OF THE FOREGOING AMENDMENT TO FINAL JUDGMENT WITHOUT FURTHER NOTICE:

FOR PLAINTIFF, CITY OF NEW YORK

FREDRICK A.O. SCHWARZ, JR.
CORPORATION COUNSEL OF
THE CITY OF NEW YORK
100 Church Street
New York, New York

BY: Stephen P. Kramer
ASSISTANT CORPORATION COUNSEL

ATTORNEYS FOR DEFENDANT,
UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY

F. HENRY HABICHT, II
ASSISTANT ATTORNEY GENERAL
LAND AND NATURAL RESOURCES
DIVISION
UNITED STATES DEPARTMENT
OF JUSTICE

JEAN KINGREY
ATTORNEY
LAND AND NATURAL RESOURCES
DIVISION
UNITED STATES DEPARTMENT
OF JUSTICE

RUDOLPH W. GIULIANI
UNITED STATES ATTORNEY FOR
THE SOUTHERN DISTRICT OF NEW YORK

Mary Ellen Kris

BY: MARY ELLEN KRIS
ASSISTANT UNITED STATES ATTORNEY

Attachment #5

#5

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
2358 MUNICIPAL BUILDING, NEW YORK, N.Y. 10007 (212) 669-6200

HARVEY W. SCHULTZ
Commissioner

March 25, 1988

Christopher J. Daggett, Ph.D.
Regional Administrator
USEPA, Region II
26 Federal Plaza
New York, NY 10278

Dear ~~Dr. Daggett~~ CHRIS:

At our meeting on March 10, 1988, we discussed that New York City submit to you a plan for conducting a feasibility study to determine if practicable, environmentally sound alternative land-based sludge management options exist for New York City. This submittal is our response and it includes a brief description of what we believe should be covered, as a minimum, in the study. It also includes our anticipated schedule for hiring the consultant and conducting the study. Additionally, we are including, as requested, a financial plan to provide funds for the implementation of selected altenatives if we are required to do so at the completion of the study.

We do recognize the need for continuing analysis of the availability of emerging as well as improved existing land-based sludge disposal alternatives. It is prudent at this time to revisit previously examined technologies to determine if changes are forthcoming, as well as to investigate technologies that are only now in the development stage. This latter point is important with respect to contingency planning, particularly for multi-option strategies. To this end, it is in the City's best interest to conduct such a feasibility study.

As was stated at our last meeting it will require approximately one year to hire a consultant and negotiate a scope of work to meet our needs. We propose that EPA participate in the hiring as well as the scope development process. EPA could also participate in the proposal evaluation and ranking process leading to consultant selection.

Of particular importance to the outcome of this study will be the risk comparison of all feasible land-based alternatives to ocean disposal as well as to each other. I therefore suggest that EPA work with us to develop acceptable risk comparison methodologies which, after your review and consent will be incorporated into the scope of work for the study. In order to meet the attached schedule, these methodologies should be finalized no later than July 8, 1988.

The completion of this study will take two years from the date of order to commence work. Although it is difficult at this time to say what will be included in the final scope of work, it should include as a minimum the following:

a. An evaluation of all land-based sludge management options.

b. Determination of the feasibility of each of the above to the sludge produced on a plant-by-plant basis.

c. Risk comparison of all feasible options, first versus ocean disposal and then versus each other.

d. Cost analyses of all feasible options developed in (b.)

e. After appropriate public participation, either city-wide or in affected communities, identify and evaluate potential sites for all feasible options developed in (b.).

f. Recommendation of New York City's options with implementation schedules.

At the completion of this study, New York City will submit the results of this study to EPA for review and comment. EPA's reviewing process will take place during calendar year 1991. As a measure of good faith, the City of New York will place in its 1991-1992 capital budget $22.5 million to be available for immediate implementation of land-based options if we are required to do so. This amount is equal to the difference between current ocean disposal operating costs and our current highest estimated land-based option operating cost for a six month period. The basis for the six month period is the time required by your office to review the results of the study. These funds will remain in the City's budget until either they are used for implementing a land based alternative or a final decision is made that ocean disposal should be continued.

I believe this program reflects our discussions and will serve both of our needs and I look forward to your approval.

Sincerely,

HARVEY W. SCHULTZ

Attachments

GNL/gt/et

cc: 1st Dep. Comm. Sommer
Dep. Comm. Holstein
Bowers
Miller
Wagner
Lutzic

Attachment #6

NOV 16 1987

Mr. Harvey W. Schultz
Commissioner
City of New York
Department of Environmental Protection
2358 Municipal Building
New York, New York 10007

Dear Mr. Schultz:

This letter is in reply to the City of New York's submission of an application for a special permit to dispose of sewage sludge at the Deepwater Municipal Sludge Disposal Site (DMSDS) designated by the Environmental Protection Agency (EPA) on May 4, 1984.

Pursuant to Paragraph 3 of the 1982 final judgment in City of New York v. EPA, 543 F. Supp. 1084 (1981), each of the nine New York and New Jersey sewage sludge dumpers were required to submit all information necessary to complete their permit applications in a timely manner following EPA's action on the designation of the 106-Mile Site and on the petitions to redesignate the 12-Mile Site. In letters dated July 18, 1986 EPA advised each of the nine New York and New Jersey sewage sludge dumpers that they must complete applications for use of the 106-Mile Site. EPA requested that complete applications be submitted on or before January 15, 1987. In response to EPA's request, the City of New York, Westchester County and Nassau County submitted applications for the disposal of sewage sludge at the 106-Mile Site on January 15, 1987. The six New Jersey agencies requested an additional six months from the January 15, 1987 date to prepare and submit a complete application. EPA approved their request and determined that the application must be submitted to EPA no later than August 1, 1987. As a result, EPA held off on completing its review of the City of New York, Westchester County and Nassau County applications pending the submittal of the New Jersey application in order that EPA could coordinate the review of the applications.

The City's application has been reviewed in accordance with the requirements set forth in Part 221 of Title 40 of the Code of Federal Regulations (40 CFR 221-227). These regulations, which identify the information that must be submitted to EPA in a complete application, were used to develop the permit application guidance package provided to the City prior to the application being submitted. This guidance package was to be used by the City to facilitate the preparation of complete application.

EPA has reviewed the information contained in "A Special Permit Application for the Disposal of Sewage Sludge from Fourteen New York City Water Pollution Control Plants at the Deepwater Municipal Sludge Dumpsite" dated January 1987 (and in "A Special Permit Application for the Disposal of Sewage Sludge from Twelve New York City Water Pollution Control Plants at the 12-Mile Site" dated December 1983). Based on this review, we have determined that the application is incomplete. It lacks updated detailed information regarding sludge generation, transport and disposal, and fails to fully evaluate all of the alternatives to ocean disposal. One of the most critical deficiencies is the failure to adequately address land based alternatives, including incineration.

As you are aware, the Marine Protection, Research, and Sanctuaries Act authorizes EPA to issue permits for the dumping of non-dredged material when it is determined that such dumping will not unreasonably degrade or endanger human health, welfare, amenities, the marine environment, or ecological systems. Ocean dumping can only be allowed if an applicant can demonstrate that no practicable alternatives exist that would cause less adverse impact or potential risk to the total environment. Since the City's application is clearly deficient in its discussion of land based alternatives, EPA is unable to balance the environmental effects of land based alternatives with those of ocean dumping.

Both the regulations and the judicial decision clearly require that the application provide detailed and comprehensive information concerning the costs and environmental impacts of land based alternatives. This information, which the application lacks, would form the basis for our determination as to whether ocean dumping, on balance, is preferable to any land based alternatives. Without such evidence, we are prepared to deny the City of New York's ocean dumping permit application on basis that it is incomplete, given its incomplete discussion of viable alternatives. We require that the City submit a complete application addressing all of the concerns raised in this letter within 60 days of the receipt of this letter.

Enclosed please find a summary of application deficiencies outlining many of the areas in which further information is needed. These comments should be used in conjunction with the guidance package and with, City of New York v. EPA, including the consideration discussed therein at 543 F. Supp. 1104-1108, to develop a complete application. Upon submission of a complete application, we will finalize our review. Should you have any questions concerning this matter, please feel free to contact me at (212) 264-2513.

Sincerely yours,

Richard L. Caspe, P.E.
Director
Water Management Division

Enclosure

cc: Daniel M. Barolo, Director
Division of Water
New York State Department of
Environmental Conservation

bcc: R. Caspe, 2WM
D. Forger, 2WM-NYBMP
H. Mazzucca, 2WM-NYBMP
✓E. Lonoff, 2WM-NYBMP
C. Hoffman, 2ORC
M. DelVicario, 2WM-MWP

New York City Department of Environmental Protection (NYCDEP) Summary of Application Deficiencies

40 CFR 221.1 (b), the identification and description of the sludge transport vessel characteristics should be expanded, particularly concerning cargo storage facilities. Sludge collection from the plants should be discussed, including loading frequency and duration. What plans does the NYCDEP have in the event of a spill? As owner of these vessels, the NYCDEP must sign the proposed transporter certification.

40 CFR 221.1 (c), the chemical analyses included in the application are insufficient for allowing a determination of compliance with the environmental impact Criteria found at 40 CFR 227.4 et seq. Sludge constituent data must be obtained for all parameters for which water quality criteria have been established. A brief explanation of the methodology used for toxicity testing from 1984 through 1986 should be included. Why were the highest dilution numbers from Table 6-19 not used to develop the minimum dump durations for meeting marine water quality criteria in Table 6-20? Why is only a "portion" of the sampling statistical analyses provided in Table 6-16? Why doesn't Table 6-17 accurately summarize the results of Table 6-16? Any predicted changes in the physical, chemical or biological characteristics of the sludge which may occur in transit or as a result of interaction with ocean waters should be described. Dissolved oxygen depletion monitoring data should be included. Discussions concerning ongoing and planned pretreatment programs and construction activities should be expanded in regard to changes in sludge quality and quantity. Contrary to the Executive Summary, 40 CFR 227.12 applies to sewage sludges. Thus, documentation concerning persistent synthetic or natural materials in the sludge which may float or remain in suspension in the ocean must be presented.

40 CFR 221.1 (d), sludge quantities should be updated to reflect the information provided by the NYCDEP for the New York State Department of Environmental Conservation's sludge inventory. The projected increase in sludge production, as compared to the low rate in the past, should be explained. Sludge quantities should also be estimated thru the March 17, 1991 closure of the DMSDS and be expressed in terms of dry tons.

40 CFR 221.1 (e), (f) and (g), the estimated dumping frequency should be reevaluated based on the above. Consideration should be given to the number of dumps expected by all dumpers combined and the interaction between dumpers. Also, the EPA presently does not require that dumpers utilize quadrants for the DMSDS, only requiring that the dump be made within the site.

40 CFR 221.1 (h), a description of each plant should be provided, including the solids content of the sludge and sludge storage facilities.

40 CFR 221.1 (i), sludge disposal costs should be presented.

40 CFR 221.1 (j), land based alternatives are addressed on an "all or nothing" basis. However, an alternatives analysis which would explore land based solutions on a plant by plant basis would allow for the consideration of a number of options based upon differing sludge and site characteristics. Such an analysis of long term sludge disposal alternatives should address implementation of land based solutions in a scheduled and systematic way.

Thus, the application should summarize why the NYCDEP contends that ocean dumping and incineration are the only "practicable" alternatives. This summary should be based on a complete evaluation of all land based alternatives, using current information, as required by the regulations. The alternative evaluation must include both total and mixed use of land based and ocean dumping alternatives, as well as a comparison of anticipated costs and environmental impacts. The NYCDEP should take advantage of any localized opportunities for each treatment plant based on sludge characteristics and use/treatment/disposal sites. For example, the composting alternatives could range from selected plants meeting the long term compost demand of city parkland with the remaining sludge being incinerated at the Greenpoint incinerator or being managed through other land based solutions. At the other end of the spectrum of composting alternatives, total composting at various centralized locations could be combined with a more aggressive distribution and marketing program, including public education, coordination with other governments, etc. In addition, the summary should state why the EPA should issue a permit for the NYCDEP to dump at the DMSDS.

40 CFR 221.1 (k), the EPA recognizes that the dispersive nature, depth and other charateristics of the DMSDS act to reduce the potential for environmental impacts. However, the dumping of sludge at the DMSDS most likely represents the only significant influx to the site. Thus, more detailed information should be provided.

Attachment #7

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

DRAFT

OFFICE OF
WATER

MEMORANDUM

SUBJECT: Strategy for Interim Implementation of Sludge Requirements in Permits Issued to POTWs

FROM: Rebecca W. Hanmer
Acting Assistant Administrator for Water

TO: Water Management Division Directors, Regions I - X
State NPDES Program Directors
State Sludge Program Directors

Section 405 of the Clean Water Act embodies Congress' concern with the environmental impacts of sludge. That concern was re-emphasized in the Water Quality Act amendments of 1987. The technical sludge standards required by the Act will, when promulgated, identify pollutant levels of concern in sludge for the major use and disposal practices. However, before the 503 standards are finalized, we need to have a program to identify and address potential problems that may be caused by contaminated or improperly disposed sludge.

The necessity to take immediate action to regulate sludge is recognized in the 1987 amendments. CWA Section 405(d)(4), as amended, requires that prior to the sludge standards, EPA must "impose sludge conditions in [NPDES] permits issued to [POTWs] ... or take such other measures as the Administrator deems appropriate to protect public health and the environment from any adverse effects which may occur from toxic pollutants in sewage sludge." Thus, the amendments direct us to protect the environment from unsafe sludge, and initiate sludge permitting.

This memorandum and attachments explain EPA's strategy for initiating a sludge permit program that targets EPA and State efforts on potential environmental problems. This document contains: 1) a discussion of how to identify priority facilities for sludge permitting, and basic permit requirements; 2) a discussion of the permit writers' guidance for writing interim sludge limits; 3) a description of EPA and State coordination on interim sludge permitting, and 4) model State/EPA agreements and boilerplate permit language. An index to the attachments is provided after this memorandum.

Background

The amendments to Section 405 reflect Congress' concern with the slowness in developing sludge standards and the lack of effective, comprehensive State and EPA programs to address environmental problems and promote beneficial uses of sludge. To address this concern the Act establishes a two-phase approach to regulate sludge. The first phase, interim implementation, commenced from the date of passage of the amendments. The second phase is long-term implementation, which begins with final promulgation of the first round of the technical standards. This phased approach is reflected in the Agency FY 88 Operating Guidance. This Strategy expands on the foundation established by the amendments and the Operating Guidance, and provides the details of implementing the interim phase.

The components of long-term implementation are promulgation of the standards and implementation of the standards through permits. These standards are to identify toxic pollutants of concern in sewage sludge and specify concentration limits and management practices for sludge. The regulations are scheduled to be proposed in the Fall of 1988, at 40 CFR Part 503. Facilities must comply with the standards within one year from promulgation (two years if construction is required). The Act requires that the standards be incorporated into permits issued to POTWs and other treatment works treating domestic sewage.

However, Congress made it clear that sludge control was not to wait for final technical standards. Instead, EPA is directed to impose conditions in NPDES permits prior to promulgation of the standards "or take other measures ... appropriate to protect public health and the environment." We have characterized this initial stage as "interim implementation." It takes on critical importance since technical regulations will not be proposed until next Fall. In both of these stages and throughout this process States must play an important role.

The focus on interim implementation is on what must be done in the next months and years, but since our interim activities are to facilitate attainment of our long-term objectives, the two are inextricably linked. Therefore, interim implementation is guided by the goals of protecting the environment while establishing State and EPA permit programs for implementing sludge requirements. The balance of this memo describes how EPA plans to implement this statutory scheme and meet the new requirements. Three questions with regard to interim activities are addressed: 1) which facilities should get priority for sludge permitting; 2) how will permit limits be developed prior to publication of the technical standards; and 3) how will the States and EPA coordinate on interim permitting.

Interim Permitting Priorities and Basic Sludge Permit Requirements

The amendments direct EPA to include sludge conditions in NPDES permits or take other measures to ensure that the public health and environment are protected. To satisfy the intent of the statute, the interim program will focus permitting efforts on the facilities which, on the basis of available information, are thought to present greater risk. While all NPDES permits issued or reissued to POTWs after February 4, 1987 should contain some minimal sludge conditions, if a POTW is a sludge priority, its permit coverage would be more comprehensive. At the time the POTW's 402 permit is due for reissuance, the permitting authority would make a determination as to whether the facility is a priority for sludge permitting. Attachment 1 identifies some sources of information to assist the permit-writer in making this determination. At a minimum, where the Region or the State knows or strongly suspects that a facility has a sludge quality problem, that facility would be a permitting priority.

All reissued POTW permits, whether or not a sludge permitting priority, would include certain basic requirements that would be incorporated as the NPDES permit is reissued: 1) a provision that the facility must be in compliance with all current federal and State laws and regulations, including a reopener provision for when the technical standards are promulgated; 2) a requirement to notify the permitting authority of any significant changes in the POTW's sludge use or disposal practices; and 3) minimum sludge quality monitoring requirements. In addition, permits issued to priority facilities would include additional requirements -- management practices and/or numeric limits -- developed on a case-by-case basis as appropriate. It is important to note that these are minimum requirements; the permitting authority must take further action where warranted to protect public health and the environment.

Although the focus of interim permitting is on POTWs with 402 permits, additional actions by EPA and the States may be needed to address a particular sludge problem before a full-scale permitting program is in place.[1] EPA and the States have the authority to do this under CWA Section 405, and in fact, the Statute requires appropriate action where necessary to protect the environment from unsafe sludge or poor disposal practices.

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[1] Once the technical standards are promulgated, States will need to obtain formal approval of a sludge permit program that requires sludge permits not only for POTWs with 402 permits, but also for non-discharging POTWs, and for other treatment works treating domestic sewage.

Attachment 1 to this memorandum discusses identifying priorities and the basic permitting requirements for all facilities -- priority and non-priority -- in further detail. Suggested boilerplate language for sludge permits and a list of the major pretreatment POTWs whose permits are expired, or expire in FY 88 and FY 89, are found in Attachment 4.

Interim Permit Conditions: Permit Writers' Guidance

Before promulgation of the technical standards, sludge conditions will be developed on a case-by-case basis. EPA is developing guidance on how to write interim case-by-case sludge requirements in permits. This document will include a summary of all current federal sludge requirements, a compilation of existing State sludge requirements for contaminant limits and required management practices, and other available information including, once proposed, a discussion of analyses used to develop the Part 503 technical standards. The guidance manual will include some recommendations for appropriate contaminant limits and management practices for the various sludge use and disposal options and provide guidance to the permit writer on how to take this information and develop permit requirements.

A draft of this guidance has been circulated to the sludge implementation workgroup for their review and comment. The next draft will be circulated for comment in April 1988 to Regions, States, and all organizations and members of the public that have expressed interest, and should be available for use in writing permits by the summer of FY 88. Before this guidance is available, permit writers should incorporate into priority permits all existing applicable federal and State requirements (e.g., 40 CFR Part 257), and develop additional limits and conditions where appropriate using existing guidance and information.

A more detailed discussion on the approach and coverage of the case-by-case permit writers' guidance is found in Attachment 2 to this memorandum.

State and EPA Coordination on Interim Sludge Permitting

Many States currently have existing sludge permit programs. One of the objectives of this interim implementation strategy is to build on these existing programs as much as possible, while meeting the requirements of the Act. The purpose of this is two-fold. First is to take advantage of the State experience and expertise in sludge permitting. Building on this experience is the most efficient and environmentally effective means of promptly carrying out the directive to protect public health and the environment. Therefore, we encourage States to undertake as much of the sludge permitting activities as they are willing and able to during this interim stage. For some, this will simply mean continuing existing programs. Also, EPA/State cooperation will help identify the strengths and weaknesses of a State program and should facilitate formal program approval in the long term. The details of this arrangement are discussed in Attachment 3.

Conclusion

We need to begin immediately to identify and address potential sludge problems, to lay the foundation for an effective permitting program that protects the environment and promotes resource recovery. EPA's statutory responsibility to take interim measures with respect to sludge requirements for POTWs became effective upon enactment of the Water Quality Act on February 4, 1987. The strategy set forth in this memorandum and attachments is designed to carry out these objectives as quickly as possible, focusing on the facilities of concern and building on existing experience and expertise. We hope that this strategy will not only enable us to carry out our short-term responsibilities under the Act to protect public health and the environment, but will also facilitate compliance with the technical standards when promulgated and approval of State programs to carry out the requirements of Section 405.

If you have any questions about this strategy please contact me, or have your staff contact Martha Kirkpatrick at (FTS) 475-9529.

Catena

THE
OCEANIC
SOCIETY

EDUCATION • RESEARCH • CONSERVATION

EXECUTIVE OFFICES
1536 16th Street, N.W.
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August 2, 1988

Statement of John G. Catena

On Behalf of

American Cetacean Society
Atlantic Offshore Fishermen's Association
National Audubon Society
Cape May City Environmental Commission
Cape May County Chamber of Commerce Environmental Committee
Center For Environmental Education
Clean Ocean Action
Coast Alliance
Conservation Law Foundation of New England
Environmental Policy Institute
1000 Fathom Club
Group For the South Fork
Greenpeace, U.S.A.
National Fish Meal and Oil Association
National Fisheries Institute
New Jersey Environmental Federation
New York Sportfishing Federation
Oceanic Society
Shellfish Institute of North America
Sierra Club
South Jersey Regional Tourism Council

Before the
Subcommittee on Water Resources
of the
Committee on Public Works and Transportation
Concerning
Ocean Dumping of Sewage Sludge

I am John G. Catena, Science/Policy Analyst for the Oceanic Society. The Society is a 45,000 member non-profit organization devoted to the protection, conservation and wise use of marine and coastal resources. In all of our activities we are dedicated to protecting the oceans for the people and wildlife that depend upon them for life, livelihood and enjoyment. I appreciate the opportunity to testify on behalf of each of the organizations listed above (hereafter referred to as the "Environmental Coalition") concerning ocean dumping of sewage sludge.

THE OCEANIC SOCIETY IS A NON-PROFIT 501 (C) (3) ORGANIZATION
CONTRIBUTIONS ARE TAX-DEDUCTIBLE

Our Environmental Coalition has long been concerned with the marine environmental consequences associated with uses of our oceans and coastal areas. Collectively, we have conducted a wide range of scientific and technical research, education and public policy programs in our continuing effort to focus the attention of decision makers and resource managers on the need for information-based marine policies.

The oceans, though vast and covering over 70 percent of the earth, are a vulnerable and complex environment. Numerous unique and important species live in or depend upon the oceans. Too often, however, our ocean and coastal resources are mismanaged due to narrow, short range special interests, with inadequate scientific understanding of the consequences. We have seriously damaged some of our coastal waters, where marine life is more plentiful. Much less is known about long-term threats to the deeper oceans, but there are strong signs of damage there, too.

In 1985, the Environmental Protection Agency initiated its "Near Coastal Waters (NCW) Strategic Planning Initiative," a multi-year effort to maintain and enhance near coastal water environmental quality. As the first stage of the NCW initiative, EPA's Office of Marine and Estuarine Protection released a "Strategic Options Paper" in August, 1986.[1] The findings of that paper substantiate the urgent situation we are facing. Quoting from the paper's introduction (footnotes omitted):[2]

> Degradation of the near coastal water environment has become a critical national problem. The ecological, economic, recreational and aesthetic integrity of near coastal waters systems in the United States is threatened daily by the cumulative impacts of a multitude of activities within the coastal drainage basins, in the near coastal waters, and on the ocean. Portions of near coastal water and shore habitats in every geographic region of the country and in every coastal state have been found to be degraded to a moderate or severe degree.
>
> Continuing increases in year-round and seasonal coastal populations are adding pressures to near coastal water ecosystems already stressed by multiple uses and demands. As near coastal water environments become

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[1] Office of Marine and Estuarine Protection, U.S. Environmental Protection Agency, "Near Coastal Waters Strategic Options Paper," August 12, 1986.

[2] _Id_. at I-1.

degraded, less of the resources are available for use by more people. There are adverse impacts to fisheries, outdoor recreation, and human health, as well as secondary impacts on tourism and property values.

Given this serious and growing problem, policies affecting the future of the ocean and its resources must be developed with environmental consequences as a primary consideration. They must be set with appropriate respect for the linkages in the ecosystem. An ecological ethic is essential in order to ensure the protection, conservation and wise use of our vital marine resources.

I. The Ocean Dumping Act: Background and Policy Overview

In 1970, the Council on Environmental Quality (CEQ) issued a report, Ocean Dumping: A National Policy, which concluded that there was a critical need for a national policy on ocean dumping. As part of such a policy, the CEQ called for enactment of a domestic law governing ocean dumping-related activities, as well as a complementary international treaty. In anticipation of such regimes, the CEQ enunciated several issue-specific principles which are equally, and even more, pertinent today -- 18 years later. Those principles included the following:

- Ocean dumping of materials clearly identified as harmful to the marine environment or man should be stopped.
- When existing information on the effects of ocean dumping are inconclusive, yet the best indicators are that the materials could create adverse conditions if dumped, such dumping should be phased out....

* * *

- Ocean dumping of undigested sewage sludge should be stopped as soon as possible and no new sources allowed.
- Ocean dumping of digested or other stabilized sludge should be phased out and no new sources allowed. In cases in which substantial facilities and/or significant commitments exist, continued ocean dumping may be necessary until alternatives can be developed and implemented. But continued dumping should be considered an interim measure.

Soon after the CEQ report was published, the Marine Protection, Research and Sanctuaries Act ("Ocean Dumping Act" or "Act") of 1972 was enacted. Pursuant to Title I of the Act, no permits may be given for dumping of certain "black list" substances enumerated in Annex I; and certain "grey list" substances enumerated in Annex II require a special permit before they can be dumped. Regulations and criteria pursuant to the Act were published initially in 1973, with the most recent substantive revisions thereto published in 1977.[3]

Also in 1972, the United States and more than eighty other countries reached agreement on a parallel international treaty governing ocean dumping -- the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (the "London Dumping Convention" or "LDC"). That treaty received the necessary ratifications (including the United States) to enter into force in 1975, with it having been accepted by 61 countries to date. The LDC provisions contain "black list/grey list" concepts similar to the Ocean Dumping Act. Moreover, the Ocean Dumping Act specifically requires the Administrator of EPA to apply the standards and criteria developed under the LDC in meeting responsibilities under our domestic law.

The actions taken in 1972 to enact the Ocean Dumping Act and to conclude agreement on the LDC treaty both exemplified very appropriate "first steps" in response to the CEQ's call for new regulatory regimes governing ocean dumping. Both those regimes, in letter and in spirit, recognized the need to protect the marine environment, and they provide a framework within which the above-quoted CEQ principles could be addressed. Despite their increasing validity over the past 18 years, however, the CEQ's stated principles still have not been met.

Our Environmental Coalition strongly opposes ocean dumping of sewage sludge which is contaminated with significant levels of persistent toxic pollutants, including organohalogens (e.g., PCBs), carcinogenic petroleum fractions (particularly polynuclear aromatic hydrocarbons (PAHs)), toxic heavy metals (e.g., cadmium, mercury, lead), and pathogenic (disease producing) microorganisms.

Some of the reasons against ocean dumping, which in important respects also underlie the guiding principles stated in the CEQ's 1970 report, are as follows:[4]

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[3] 40 C.F.R. Part 227.

> 1. Persistent toxic materials should, to the maximum possible extent, be isolated and contained (if not destroyed or recycled) to facilitate management, control, monitoring, and (if necessary) remedial actions; the ocean as a dispersal medium is inimical to this objective;
>
> 2. Unlike waste disposal on land, the ocean as a disposal medium is inherently more vulnerable to exploitation and abuse since it is not protected by the marketplace and political forces that protect private property and demand accountability on land; and
>
> 3. Given the lack of complete knowledge and the necessity of acting despite such knowledge gaps, disposal of persistent toxic wastes in the ocean, to the extent it serves to reduce even short-term impacts, is likely to do so only at the expense of those down-current and in the future, and so should be resisted in favor of true treatment and containment technologies.

It has also been suggested that municipalities located inland of coastal communities have good cause to advance a fourth reason against ocean dumping of sewage sludge, i.e., fairness.[5] Land-based management practices are applied to 96% of the sewage sludge currently produced in the United States. While inland communities bear the expense of land-based sludge management options, a few of their coastal counterparts have shirked their responsibility to protect the environment in favor of the cheap and politically expedient option of ocean dumping.

Each of the above reasons, in our view, has substantial merit. Moreover, they provide a sound basis for EPA's overall policy on ocean dumping, which was most recently articulated by an Agency official before a Senate subcommittee hearing on ocean dumping in February 1988:[6]

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[4] Statement of Kenneth S. Kamlet, on behalf of the National Wildlife Federation, at a Hearing on Reauthorization of the Marine Protection Research and Sanctuaries Act, Before the Subcommittee on Oceanography and the Subcommittee on Fisheries and Wildlife Conservation and the Environment, of the Committee on Merchant Marine and Fisheries, House of Representatives, 98th Cong., 2nd Sess., Serial No. 98-39, March 1, 1984, at 80.

[5] Id.

> (1) We will, as an overall principle, protect the oceans from significant adverse effects of waste disposal. We will particularly assure that they are not used for "cheap" waste disposal as a matter of short run economic considerations alone; (2) In any specific case, the Agency will allow ocean disposal of a waste only if the applicant can show that no practicable alternatives are available that have less impact on the total environment. EPA will apply a rule of reason in determining practicability; and (3) For the long run, we will actively encourage environmentally beneficial approaches such as waste minimization, recycling or reuse.

Our Environmental Coalition believes that (1) the CEQ's statement of principles, (2) the above-stated reasons against ocean dumping, and (3) EPA's overall policy approach to ocean dumping should serve as the foundation for your Subcommittees' review of ocean dumping of sewage sludge.

II. Sewage Sludge Dumping

A. Regulatory and Judicial Backdrop

Sewage sludge dumping in the ocean is regulated under Section 102 of the Ocean Dumping Act. However, sewage sludge dumping in the New York Bight long preceded the Act. That area has been subject to sludge dumping for over 60 years; the 12-Mile dump site was designated in 1924.

An amendment to the Act in 1977 prohibited EPA from issuing any permits for dumping of sewage sludge after December 31, 1981. Sewage sludge was defined as follows:

> ...any solid, semi-solid, or liquid waste generated by a municipal wastewater treatment plant the ocean dumping of which may unreasonably degrade or endanger human health, welfare, or amenities or the marine environment, ecological systems, and economic potentialities.

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[6] This policy was set forth in a statement by Christopher J. Daggett, EPA Region II, before the Subcommittee on Environmental Protection and the Subcommittee on Superfund and Environmental Oversight of the Senate Committee on Environment and Public Works, February 18, 1988.

In accordance with this statutory mandate, over 200 sewage treatment plants terminated ocean dumping of sewage sludges and implemented land-based disposal methods by the December 31, 1981 deadline. However, nine large municipal sewage authorities (with a total of 27 individual treatment plants) did not meet the deadline. EPA denied further renewal of their permits in 1981, at which time the municipalities challenged that decision in court.

In February, 1981, in Bergen County Utilities Authority v. EPA, 507 F. Supp. 780 (D.N.J. 1981) a district court in New Jersey upheld EPA's refusal to issue a permit for continued ocean dumping of sewage sludge.

Subsequently, in City of New York v. EPA, 543 F. Supp. 1084 (S.D.N.Y. 1981), New York City argued that Congress only intended to ban dumping which "unreasonably" degraded the marine environment. In addition, New York argued that EPA, in determining whether degradation is "unreasonable," must evaluate the costs and potential hazards of land-based alternatives. In an August, 1981 decision, Judge Sofaer held that EPA could not deny ocean dumping permit applications without considering the cost and potential hazards from land-based alternatives. EPA was prevented under that decision from prohibiting New York City from continued dumping at the 12-Mile Site until EPA ruled on the City's petition to redesignate the 12-Mile Site.

In related action, six other northern New Jersey sewer authorities sued EPA using New York City's arguments. EPA agreed to permit them to continue dumping at the 12-Mile Site until they made a final decision on petitions to redesignate the site.

EPA denied those petitions in April of 1985. One year prior to that decision, in May of 1984, EPA had designated a Deepwater Municipal Sludge Dump Site (hereafter, the "106-Mile Site"). Under court orders arising from the suits against EPA, the City of New York and eight municipalities were required to terminate use of the 12-Mile Site by December 31, 1987, and to transfer dumping activities to the 106-Mile Site. Dumping at the 106-Mile Site will continue, subject to (1) EPA's final determinations on each municipality's permit application that is currently pending, and (2) the Agency's review of the site's suitability, including the effects caused by past and ongoing dumping.

Continued ocean dumping of sewage sludge is contrary to the absolute prohibitions in the London Dumping Convention against the dumping of other than trace amounts of "black list" constituents (mercury, cadmium, organohalogens, and oily wastes). Since the Convention's requirements are binding on the United States, the allowance of any ocean dumping of sludge containing other than trace contaminants -- whether on an interim or final basis -- is illegal. Regulations promulgated under the Act (40 CFR Part 227) (the "ocean dumping regulations") authorize the issuance of ocean disposal permits only after consideration of the environmental effects of the proposed dumping operation, the need for the ocean dumping -- including the consideration of alternatives -- and the effect of the proposed action on esthetic, recreational and economic values and other uses of the ocean. Ocean dumping of sludge does not satisfy these criteria.

As discussed in Part II(F) below, our Environmental Coalition supports H.R. 4338, the legislation proposed by Representatives Hughes, Saxton and Schneider to prohibit ocean dumping of sewage sludge after December 31, 1992. We believe that such a proposal is necessary to direct existing sewage sludge dumpers to pursue environmentally preferred land-based technologies for dealing with their wastes.

B. Demonstrated Effects on the Marine Environment At the 12-Mile Site

Section 227.4 of the ocean dumping regulations establishes criteria for evaluating environmental impacts of proposed dumping activities. Under this section, environmental acceptability is presumed if the applicable environmental prohibitions, limits, and conditions are satisfied. Under this provision, EPA must determine that the disposal will present:

(a) No unacceptable adverse effects on human health and no significant damage to the resources of the marine environment;

(b) No unacceptable adverse effect on the marine ecosystem;

(c) No unacceptable adverse persistent or permanent effects due to the dumping of the particular volumes or concentrations of these materials; and

(d) No unacceptable adverse effect on the ocean for other uses as a result of direct environmental impact.

The sewage sludges currently ocean dumped by New York City and the other New York and New Jersey Sewage Authorities are contaminated with environmentally significant levels of persistent toxic pollutants, including organohalogens (e.g. PCBs), carcinogenic petroleum fractions (particularly polynuclear aromatic hydrocarbons (PAHs)), toxic heavy metals (e.g., cadmium, mercury, lead), and pathogenic (disease producing) microorganisms (See Tables I and II).

Degradation of the marine environment resulting from ocean dumping of such contaminated sewage sludge at the 12-Mile Site is well documented. While the physical and environmental conditions at the 106-Mile Site are considerably different than those at the 12-Mile Site, past evidence of effects on marine organisms at the 12-Mile Site must be considered in evaluating the appropriateness of continued sludge dumping at the 106-Mile Site. Ecological effects attributed wholly or in part to the ocean dumping of municipal sludge include:[7]

- closure of shellfish beds - elevated levels of bacteria from sewage sludge dumping at the 12-Mile Site resulted in the closure of a 150 square mile area surrounding the site to commercial shellfishing;

- introduction of viral, bacterial, fungal and protozoan pathogens into the area of impact;

- elevated levels of heavy metals (e.g., cadmium, mercury, lead, copper, chromium) and toxic organic compounds (e.g., PCB's) in bottom sediments;

- reduced bottom dissolved oxygen levels;

- reduced catches of bony fishes;

- alterations in the benthic biological community, particularly the proliferation of stress-tolerant polycheate worms;

- changes in relative abundance and diversity of species inhabiting the area in the vicinity of the 12-Mile Site;

- observed sublethal effects in organisms, including reduction of reproductive functions, bioaccumulation, and increased bacterial resistance to antibiotics and toxic metals;

- increased incidences of fin rot and black gill;

- mutation of fish larvae and decreased survival of offspring; and

- planktonic blooms and anaerobiosis (resulting from introduction of carbon and nutrients).

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[7] Anderson, Dr. Peter W., Statement for the Public Hearing on the Tentative Denial to Redesignate the 12-Mile Sewage Sludge Dump Site, at 8.

It was because of these and other demonstrated adverse effects on the water quality and marine organisms within the vicinity of the 12-Mile sewage sludge dumpsite that led EPA in 1984 to set in motion a process for ending the use of this site. Rather than halting the use of the ocean altogether for sewage sludge dumping, the EPA opted to designate a deep water site located off the continental shelf. The hope is that the dumping of the harmful sludge in an area that is not heavily utilized by humans and is of "minimal ecological importance" will minimize the potential adverse impacts. However, as discussed below, the 106-Mile Site is not an appropriate site for sludge dumping.

C. The 106-Mile Site Is An Unacceptable Site

The 106-Mile waste disposal site is located approximately 100 miles due east of Cape May, New Jersey just off the continental shelf in waters ranging from 1,500m to 2,750m. Since 1961, this site has been used intermittently by more than 100 different dumpers as a dump site for a wide variety of waste materials.

1. Unique Regional Oceanic Processes

Because of the several different types of water masses that occupy the area throughout the year and the unpredictability of the strength and direction of currents, this area has been described as one of the most hydrographically complex areas in the western Atlantic Ocean.[8] It is this complex water mass structure, however, that provides for a "highly diverse and dynamic biological community" within the 106-Mile Site.[9] The dumpsite is located within continental slope waters, between continental shelf and Gulf Stream waters. Both continental shelf and Gulf Stream waters, however, periodically invade the area, thus complicating the predictability of the distribution and mixing of any waste plumes. Shelf water incursions into the dumpsite area occur predominantly in the spring when fresh water runoff and increased wind causes offshore movement of the shelf waters. Northward meandering of Gulf Stream water and the breaking off of Gulf Stream "warm core eddies" which traverse the dumpsite area are the causes of these water masses occupying the dumpsite.[10]

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[8] Bisagni, James J. "Final Report - Long-Term Correlation of Industrial Waste Disposal at the 106 Mile Dumpsite with the Receiving Water Masses: October 1976 Through September 1985." A Report to the Northeast Fisheries Center, NMFS/NOAA, Department of Commerce, December 1985.

[9] National Marine Fisheries Service, "106-Mile Site Characterization Update," NOAA Technical Memorandum, NMFS-F/NEC-26, August 1983, at xvi (hereafter, "106-Mile Update").

There are several implications arising from this complex water mass movement. First, the waters of the continental shelf off the East coast of the U.S. are some of the most productive in the world. The National Marine Fisheries Service notes that this area represents the spawning and nursery grounds for some 200 species of fish and no one area can be singled out as insignificant to the reproductive success of some species of fish.[11]

Most fish spawn pelagic eggs during the spring and summer months which drift in the water column until hatching takes place. Upon hatching, the developing larvae are dependent on, among other things, favorable circulation patterns, water quality and food supply. In the spring, when spawning is most intense within the waters of the continental shelf, these waters may move within the dumpsite area and expose the fish eggs and larvae and the plankton upon which they feed to the waste materials. In fact, studies conducted for NOAA indicated that, of all the wastes dumped at the 106-Mile Site over a ten-year period, 18.5 percent were dumped in the more biologically productive shelf water which had displaced the slope water occupying the 106-Mile Site.[12]

Second, Gulf Stream warm core eddies can distribute the waste dumped at the 106-Mile Site over a very wide area. The eddies are clockwise rotating warm core rings which break off of the Gulf Stream and migrate in a west - southwest direction usually from offshore areas off New Jersey to the Outer Banks of North Carolina until they merge back into the Gulf Stream. Recent studies have shown that of the wastes dumped, anywhere from 13.4 percent to 23.5 percent of the wastes were dumped in Gulf Stream warm core rings.[13] These rings are significant for at least two reasons: they have the potential to distribute the waste over a large area; and big game fish, such as swordfish and marlin, tend to follow the edges of the rings. Thus, the potential for damaging these extremely valuable recreational and commercial fisheries is very real.

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[10] Bisagni, _supra_, note 8 at 3.

[11] 106-Mile Update, _supra_, note 9 at xvi.

[12] Bisagni, _supra_, note 3, at 9.

[13] Bisagni, _supra_ note 3 at 9; _See_ also, Barton, Kenneth W., "Report of Water Masses Receiving Wastes form Ocean Dumping at the 106-mile Dumpsite: October 1, 1985 through September 30, 1986." Data Analysis Product, Report No. 23, March 1987. NMFS/NOAA.

Although the dumpsite may be located in an area which is relatively remote from human populations, the oceanographic conditions present at this site have led the National Marine Fisheries Service to estimate that the "potential area of influence" (PAI) of the dumped wastes extends over an area off the coasts of New Jersey to North Carolina, encompassing approximately ^{4}5,000 mi2. **(See Figure 1).**

Another complication caused by the physical aspects of the 106-Mile Site is that throughout the year a density gradient called the "pycnocline" stratifies the water column, creating boundaries between layers of waters having different densities. During the summer months when surface waters are the warmest, the pycnocline is most pronounced, and lies at a depth of 20m to 50m. The pycnocline drops to about the 200m level during the winter months. This density gradient has the effect of acting as a barrier which the wastes are usually unable to penetrate. The mixing of such wastes during the summer months is thus confined to the biologically active top 50 meters of the water column, thereby putting at risk the organisms that have spawned during this most active of seasons. Living marine resources are at risk, since both pollutants and the living organisms have a tendency to stabilize just above the pycnocline, thereby exposing themselves to the pollutants.

2. Environmental Effects at the 106-Mile Site

Recent research at the 106-Mile Site reveals several trends that indicate that the ecology at the site may already be heavily stressed. Research has shown dumping (primarily of industrial waste) to result in an "unequivocal demonstrated biological response" to copepods, a planktonic crustacean which is as an important link in the oceanic food chain.[14] Specifically, a statistically significant decrease in the copepod Temora stylifera has been found at the site. In addition, two other trends have emerged for which insufficient data is available to make statistical comparisons. These are melanization (blackening) of euphasid gills and depressions in phytoplankton abundance.[15] These trends signify cause for extreme caution in increasing the pollution load at the site.

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[14] EPA Region III position paper on Du Pont Permit Application to Review Permit No. II-DE-138-Special, 1987 at 12.

[15] Id.

The risks posed by the presence of heavy metals in the sewage sludge are of particular concern. As is true in many situations, no record is kept of cumulative loads of contaminants at the dump site including heavy metals. From data provided by New York City's permit application to continue dumping at the 106-Mile Site, the Oceanic Society has conducted an analysis of the chemical constituents of New York City's sewage sludge. Tables I and II provide estimates of the amounts of hazardous materials contained in the sludge which were dumped at the 106-Mile dumpsite in 1986 and 1987. Despite gross deficiencies in New York City's testing method (which would lead to much greater estimates), we have found that roughly 264,000 kg/year of Zinc, 227,000 kg/year of Copper, 146,000 kg/year of Chromium and 100,000 kg/year of lead have been dumped at the 106-Mile dumpsite by New York City alone (which accounts for 45% of the total sludge dumped).

The sensitivity of open ocean phytoplankton to metals is well documented, and the significance of the productivity of plankton to the global carbon cycle is only now being recognized. The importance of phytoplankton to the entire marine ecosystem is stated in the 106-Mile Site Update (emphasis added):[16]

> The phytoplankton are often noted as being the basis of aquatic food chains and are, therefore, regarded as an essential component of the fisheries production system. In recent years it has become apparent that contaminants associated with wastes being dumped or discharged into waterways via point and nonpoint sources may affect phytoplankton populations, their productivity, and their relative usefulness within the food webs. Marine scientists therefore believe that the phytoplankton, collectively, are an extremely important component of the ecosystem and must be understood prior to implementing new waste disposal activities in marine waters or continuing or increasing waste loading.

The NOAA findings indicate a potentially damaging trend regarding phytoplankton impacts at the 106-Mile Site. Absent a clear understanding of this finding, sludge dumping should not be continued.

Further, a significant increase in moribundity of fish eggs in the potential area of influence and the frequency of damaged eggs was high (19.8 percent) in the waste plumes.[17] This finding is particularly disturbing in light of the fact that the 106-Mile Site supports important fisheries, including cod, haddock, menhaden, bluefish, mackerels, silver and other hakes, anchovy and sand lance.[18] As noted by NOAA:

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[16] 106-Mile Update, supra, note 9, at xvi.

[17] Region III position paper, supra, note 12, at 12.

> The fish and shellfish that inhabit the PAI sector of the shelf either as eggs, larvae, juveniles or adults constitute a significant segment of the commercial and recreational fisheries that contribute one billion dollars annually to the economies of the coastal states from Maine to North Carolina.

Clearly, dumping at the site may already have resulted in significant damage to the resources of the marine environment and unacceptable adverse effects on the marine ecosystem, in and around the dump site. Given the adverse impacts on copepods and fish eggs, and the adverse trend with regard to phytoplankton abundance, continued dumping at the site is unacceptable. This is especially true given that "the long term continued use of the site cannot be fully extrapolated due to insufficient information on the value of this planktonic community, especially the icthyoplankton on the population dynamics of the shelf."[19] As noted in NOAA's 106-Mile Site Update (emphasis in original):[20]

> The pelagic ecosystem of the potential area of influence (PAI) within and adjacent to the immediate vicinity of the disposal site location has not been, as yet, subjected to intensive study.

Under these circumstances, the Environmental Coalition believes that the requirements of Section 227.4 of the ocean dumping regulations have not been met.

Continued dumping of sludge would allow the dumping of mercury, cadmium, lead, chromium, PAHs and known carcinogenic or mutagenic material (copper, PCBs), which are prohibited from dumping under Section 227.6(a)(2), (3), and (5). However, Section 227.6(f) provides an exemption from the applicable limitations and prohibitions for dumping at sea only (emphases added):

> when the applicant can demonstrate that such constituents are (1) present in the material only as chemical

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[18] 106-Mile Update, at v.

[19] Region III position paper, at 12.

[20] 106-Mile Update, at vii.

> compounds or forms (e.g., inert insoluble solid materials) non-toxic to marine life and non-bioaccumulative in the marine environment upon disposal and thereafter, or (2) present in the material only as chemical compounds or forms which, at the time of the dumping and thereafter, will be rapidly rendered non-toxic to marine life and non-bioaccumulative in the marine environment by chemical or biological degradation; provided that they will not make edible marine organisms unpalatable; or will not endanger human health or that of domestic animals, fish, shellfish, or wildlife.

Specifically, Section 227.6(c)(2) requires that bioassay results on the suspended particulate phase of the waste do not indicate occurrence of significant mortality or significant adverse sublethal effects including bioaccumulation due to the dumping of wastes.[21] Until such bioassays are conducted, compliance with the legal requirements for sludge dumping is uncertain.

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[21] Section 227.8 of the ocean dumping regulations specify that:

> No wastes will be deemed acceptable for ocean dumping unless such wastes can be dumped so as not to exceed the limiting permissible concentration as defined in 227.27.

Under Section 227.27 the measure of "initial mixing" is only applied to the liquid phase of the waste. A difference in initial mixing might be expected between a deep ocean site such as the 106-Mile Site and a near shore site. By contrast, for the suspended particulate and solid phases of the sewage sludge (which contain most of the potentially harmful materials) the limiting permissible concentration (LPC) is defined strictly on the basis of laboratory toxicity and bioaccumulation tests, the results of which are uninfluenced by the choice of disposal site. It appears that no effort has been made to conduct bioassays for the waste that is currently being ocean dumped at the 106-Mile Site.

We understand that EPA is preparing proposed sewage sludge criteria that will alter the definition of the LPC. However, these regulations are not expected to be available for public review until the fall of this year.

3. The Site Is Not Suitable for Environmental Monitoring

Because of the highly dispersive nature of the ocean in this area, the monitoring of long-term effects will be extremely difficult. NOAA characterizes the site as a "highly dispersive environment where waste contaminants will be mixed effectively and transported in unpredictable ways from points of input."[22] In order to effectively monitor for long-term effects, EPA would be required to monitor an area which for practical purposes is too large to cover on a long-term basis. EPA states in its 1980 Environmental Impact Statement for the designation of the 106-Mile Site that (emphasis added):[23]

> under the dynamic conditions at the 106-Mile Site, long-term monitoring will be nearly impossible to measure because affected plants and animals will most likely have moved out of the area, either by swimming or drifting with the water.

Current monitoring efforts are twice a year and only within the actual dumpsite. Prohibitive costs render a much greater monitoring effort impossible at this time.

One of the site selection criteria under Section 228.6 of the ocean dumping regulations is the feasibility of surveillance and monitoring. Given the extremely limited likelihood of conducting any meaningful monitoring activities to determine effects of sludge dumping, it is clear that this site is inappropriate.

In addition, while any proposed permit for sludge dumping is expected to require that monitoring activities be undertaken at the site to determine any adverse environmental impacts, past industrial waste dumping at the site makes environmental monitoring in the area difficult, if not impossible. While no industrial waste is currently being dumped at the 106-Mile Site, nearly 30 years of dumping activity, as discussed earlier, has already resulted in damage to the marine environment. Thus it will be that much more difficult to determine through monitoring if sludge dumping is causing further damage.

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[22] Id., at xii (Emphasis added).

[23] Environmental Protection Agency, Environmental Impact Statement for 106-Mile Ocean Waste Disposal Site Designation, February 1980.

4. Impacts on Other Uses and Activities

In addition to a consideration of the question of environmental acceptability, review of a proposed dumping activity involves an evaluation of the effect of the activity on other uses of the ocean. The Ocean Dumping Act requires that EPA establish criteria for reviewing and evaluating proposed dumping activities with regard to the effect on alternate uses of the ocean, such as scientific study, fishing, other living resource exploitation, and non-living resource exploitation. Based upon that statutory directive, existing ocean dumping regulations include specific standards for evaluation of the impact of the proposed dumping on esthetic, recreational and economic values and other uses of the ocean (227.17 to 227.22).

Subpart D of the ocean dumping regulations requires that the impact of the dumping on esthetic, recreational and economic values be evaluated individually with respect to (227.17):

(1) Potential for affecting recreational use and values of ocean waters, inshore waters, beaches, or shorelines; and
(2) Potential for affecting the recreational and commercial values of living marine resources.

In addition, Subpart E of the Ocean Dumping Act regulations requires that an evaluation be made on an individual basis of the potential effects of the dumping on other uses of the ocean. Section 227.21 enumerates in detail those uses that must be considered. It states:

> An appraisal will be made of the nature and extent of existing and potential uses of the disposal site itself and of any areas which might reasonably be expected to be affected by the proposed dumping, and a quantitative and qualitative evaluation made, where feasible, of the impact of the proposed dumping on each use. The uses considered shall include, but not be limited to:
>
> (a) Commercial fishing in open ocean areas;
> (b) Commercial fishing in coastal areas;
> (c) Commercial fishing in estuarine areas;
> (d) Recreational fishing in open ocean areas;
> (e) Recreational fishing in coastal areas;
> (f) Recreational fishing in estuarine areas;
> (g) Recreational use of shorelines and beaches;
> (h) Commercial navigation;
> (i) Recreational navigation;
> (j) Actual or anticipated exploitation of living marine resources;

(k) Actual or anticipated exploitation of non-living resources...; and
(l) Scientific research and study.

Absent an EIS on the transport and transfer phase of the proposed dumping activity, it is impossible to evaluate potential risks to esthetic, recreational and economic values. It is well recognized that the large stretch of the Atlantic shoreline that would be impacted by a spill or permitted dumping at sea represent valuable economic resources with regard to both tourism and fisheries. The location of recreational beaches (Atlantic City, New Jersey) only 105 nautical miles from the dump site raises serious concerns about potential impacts. Yet, no evaluation has been prepared on potential impacts on esthetic, recreational and economic values resulting from either the impacts of spills along the transportation route or the dumping activities.

Section 227.18 of the ocean dumping regulations sets out with specificity the factors to be considered in this analysis, including, nature and extent of present and potential recreational and commercial use of areas which might be affected by the proposed dumping; existing water quality, and nature and extent of disposal activities in the areas which might be affected by the proposed dumping; visible characteristics of the materials which result in an unacceptable nuisance in recreational areas; presence in the materials of pathogenic organisms that might adversely effect fisheries and shell fisheries; presence in the materials of toxic chemical constituents which may affect human health; presence in the materials of chemical constituents which may bioaccumulate; and presence in the materials of constituents that might significantly affect living marine resources of recreational or commercial value. EPA has not undertaken such an assessment, which is necessary to adequately evaluate the acceptability of the dumping activity.

NOAA's 106-Mile Update indicates that dumping activities may indeed interfere with fisheries. NOAA concludes that "it is clear the PAI as it extends onto the continental shelf is an important fish production area contributing significantly to the stocks supporting the commercial and recreational fisheries of the adjacent coastal states."[24] As one example, the larval stages of bluefish, the most important recreational fishery on the East Cost, occur in slope waters, including the area of the 106-Mile dumpsite. NOAA states that "it is clear that [bluefish] occupy waters potentially influenced by dumping at the 106-Mile Site during the vulnerable early part of their life cycle." [25]

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[24] Id. at vi - vii.

[25] Id. at 7-9.

Figures 2 and 3 graphically demonstrate the proximity of valuable fishing grounds to the dumpsite. Figure 2 shows the distribution of the lobster and red crab fisheries within the PAI, while Figure 3 shows the location of the biologically productive offshore canyons which serve as habitats for a number of commercially important fisheries, including tilefish and lobster. While these areas are depicted as "New Jersey's commercial fishing grounds" and "New Jersey's offshore sportfishing grounds," fishermen from Rhode Island to North Carolina -- and in the case of the sport fishing areas, fishermen from all over the United States -- use these fishing grounds. As such, it is not just the economy of New Jersey, but a much broader sector that is at stake. Adverse impacts in the PAI could have serious, far-reaching effects on these important fisheries.

Absent an EIS to provide adequate consideration of these factors, the requirements of Section 227.18 have not been satisfied. The 106-Mile update indicates the value of the big-game fishery in New Jersey alone to be approximately $73 million and emphasized the magnitude and importance of this offshore fishery and the impact any adverse changes in distribution and/or abundance of tunas and billfishes would have on the fishery.[26] Both tuna and billfish are known to frequent the area near the dump site.[27]

The broader impacts of the dumping activity on commercial fisheries within the PAI must be considered. The 106-Mile Update indicates that the tilefish fishery is already under stress (presumably due to fishing pressure) that could be exacerbated by adverse impacts of dumping. Further, NOAA suggests a foreign fishing fleet associated with the PAI worth approximately $8.7 million and notes recent U.S.-foreign joint fishing ventures that could be adversely impacted by waste disposal at the 106-Mile Site.

Clearly, a more careful evaluation is needed of potential impacts on other uses of the ocean based upon sound scientific fact. The preparation of an EIS which includes a more comprehensive evaluation of impacts (including potential impacts along the sea transportation route), and which recognizes scientific uncertainties that currently exist with regard to fate and effect of sludge constituents, would go a long way toward providing the necessary analysis. Given the difficulty of monitoring at the proposed dump site, and the absence of an evaluation of potential effects on esthetic, recreational, and economic values and other uses of the ocean, the use of the 106-Mile Site for the proposed dumping is inappropriate.

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[26] 106-Mile Update, at xxiv.

[27] Id. at vii.

C. Continued Dumping of Sewage Sludge at the 106-Mile Site Violates other Federal Statutory Requirements

1. NEPA Requirements

EPA has failed to prepare an environmental impact statement (EIS) for ocean dumping of sludge at the 106-Mile Site, including the transportation of the waste, as required under the National Environmental Policy Act of 1969 (NEPA), as amended, 42 USC 4321 et seq. Under NEPA, an EIS is to be included in every recommendation or report on proposals for legislation and "other major Federal actions" significantly affecting the quality of the human environment. [28] The issuance of an ocean dumping permit is customarily accompanied by the preparation of an EIS.

EPA cannot rely on the 106-Mile Site EIS, which primarily focuses on industrial waste dumping, and the 106-Mile Update as a basis for sludge dumping because those documents do not give consideration to potential environmental risks resulting from environmental impacts of the particular waste sought to be dumped and transportation of the waste 100 miles off the Atlantic Coast. It is critical that a worst case analysis be prepared so that the risks are understood. EPA can then weigh such risks fairly against any potential benefits it might perceive.

The U.S. Supreme Court has stated that an EIS is only the "outward sign that environmental values and consequences have been considered." Andrus v. Sierra Club, 442 U.S. 347, 350 (1979). Ultimately, what NEPA seeks are environmentally better agency decisions. The EIS was not intended by Congress as an end in itself, but rather, as the CEQ regulations state (40 CFR Section 1500(1)(c)):

> The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment.

With that broader purpose in mind, preparation of an EIS by EPA would demonstrate the Agency's commitment to NEPA principles.

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[28] 42 U.S.C. 102(2)(C).

2. Endangered Species Act Requirements

Under the Endangered Species Act (ESA), 16 U.S.C. Section 1631 et seq., every federal agency has an obligation to insure that its actions are not likely to jeopardize the continued existence of any endangered species or destroy or modify its habitat.[29]

A determination that ocean dumping activities at the 106-Mile Site will not affect any endangered or threatened species is virtually impossible to make because the impact of the dumping on marine mammals, turtles, and birds is difficult to predict, and the residence times of marine mammals at the site and in the PAI are not well documented. Current knowledge suggests, however, that many species of marine mammals, turtles, and birds, including endangered and threatened species, spend significant parts of their lives in the potential area of impact.

As noted in the 106-Mile Update,[30] species of marine mammals recorded in the PAI throughout the year include: bottlenosed dolphin, Tursiops truncatus; grampus, Grampus griseus; pilot whales, Globicephala spp.; sperm whale, Physeter macrocephalus; minke whale, Balaenoptera acutorostrata; and fin whale, B. physalus. Spotted dolphins, Stenella spp.; white-sided dolphin, Lagenorhynchus acutus; sei whale, B. borealis; humpback whale, Megaptera novaeangliae; and beaked whales (Ziphiidae) were found seasonally. Humpback, fin, sei, and sperm whales are endangered species. Loggerhead turtles, Caretta caretta, which are threatened species, and leatherback turtles, Dermoschelys coriacea, which are endangered, were also found in the area. In addition, a total of 27 species of seabirds have been recorded in the PAI.

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[29] Section 7(a)(2) of the ESA provides that (16 U.S.C. 1536 (a)(2):

> Each Federal agency shall, in consultation with and with the assistance of the Secretary [of Commerce or Interior], insure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species....In fulfilling the requirements of this paragraph each agency shall use the best scientific and commercial data available.

[30] 106-Mile Site Update, at xxvii - xxviii.

The estimated incidence of all endangered whales in the North Atlantic is over 3400 in the spring and summer months, over 1700 in the winter, and over 800 in the fall.[31] Threatened loggerhead sea turtles are most abundant in the summer when the population is estimated at an impressive 10,912.[32] An estimated 2000 loggerheads are present in the spring and fall as well.[33]

The 106-Mile Update states:[34]

> Sightings of cetacean and turtle species suggest considerable movement into and out of the 106-Mile Site's PAI seasonally. Although several species can be seen in the area throughout the year, individual residence times could not be determined from available data.

No efforts have been made to determine the potential impact of sewage sludge dumping on marine mammals, turtles and birds. However, NOAA's 106-Mile Update suggests the potential for impaired breeding performance or adverse impacts on long-term survival resulting from direct physical contact or contamination of food sources (food chain related effects).[35] However, NOAA has suggested that "[a] better understanding of food habits in relation to prey availability is needed for a thorough evaluation of residence time and food chain related effects caused by excessive burdens of pollutants from dumping."[36]

EPA's Final Environmental Impact Statement (EIS) for the 106-Mile Site[37] noted the presence at the site of a range of whales and turtles, some of which are rare or endangered, but stated that "...disposal activities at the 106-Mile Site would not obstruct migrations nor harm these animals in any foreseeable way since, as migrants, they would only be in the site a few hours, at most, and would tend to avoid dump vessels."

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[31] EPA, Marine Operations Division, Office of Marine and Estuarine Protection, "Assessment of the Impact of Incineration of Chemical Wastes in the Proposed North Atlantic Incineration Site on Endangered and Threatened Species," July 9, 1985, at 41, 43, 45, 47, 49 and 52.

[32] Id., at 36.

[33] Id.

[34] Id. at xxviii.

[35] 106-Mile Site Characterization Update, at 11-19.

[36] Id.

[37] EPA, EIS for 106-Mile Site, supra, note 22 at 3-7.

The lack of information concerning residence times in the PAI and the 106-Mile Site itself suggests that the assumption that these animals merely use the PAI for migratory purposes is speculative at best. Indeed, new evidence suggests, for example, that the Mid-Atlantic region "may be an area of considerable importance to the life cycle of the sperm whale."[38]

In sum, absent adequate data about the residence time of marine mammals, turtles, and seabirds in the PAI, and in light of the uncertainties about potential impacts of sludge dumping on these creatures, a determination that the proposed dumping activity will have no impact on endangered species in the area is clearly erroneous.

It is therefore critical that the appropriate regional office of the National Marine Fisheries Service and the Fish and Wildlife Service prepare biological opinions for assessing future permits for sludge dumping at the 106-Mile Site.[39]

D. Land-Based Alternatives Exist for Management of Sewage Sludge

Both the London Dumping Convention and the Ocean Dumping Act require a finding of need before ocean dumping is allowed. Existing regulations under the Act interpret the needs determination as requiring a comprehensive evaluation of potential reduction, treatment, and disposal options for the waste proposed for dumping (227.14 - 227.16). Currently, a permit for ocean dumping in the U.S. will be issued only upon demonstration that:

> [t]here are no practicable improvements which an be made in process technology or in overall waste treatment to reduce the adverse impacts of the waste on the total environment...

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[38] McKenzie, Tracey, and John Nicolas, "Cetaceans, Pinipeds and Sea Turtles," Draft, NMFS, Northeast Fisheries Center, Habitat Conservation Branch, 1985.

[39] We understand that a biological opinion was prepared in 1984 as part of the process for designating the 106-Mile Site. New information about endangered and threatened species that has been gathered at the site since that time, coupled with the significant amounts of sludge proposed to be dumped at the site, warrant that the biological opinion be updated.

and

> [t]here are no practicable alternative locations and methods of disposal or recycling available, including without limitation, storage until treatment facilities are completed, which have less adverse environmental impact or potential risk to other parts of the environment than ocean dumping...

Also under existing U.S. regulations, permittees may:[40]

> be required to terminate all ocean dumping by a specified date, to phase out all ocean dumping over a specified period or periods, to continue research and development of alternative methods of disposal and make periodic reports of such research and development in order to provide additional information for periodic review of the need for and alternatives to ocean dumping....

The existing regulations reflect the spirit in which the Ocean Dumping Act was enacted. The intent is to ensure that the use of ocean dumping will not impede the development of better solutions to waste disposal. This goal is achieved by strictly limiting the use of ocean dumping when environmentally acceptable methods for reduction, treatment, and disposal are available on land.[41]

This same spirit is reflected in the needs determination required under the LDC, which states that before any permit for dumping may be issued, the permitting authority must consider "[t]he practical availability of alternative land-based methods of treatment disposal or elimination, or of treatment to render the matter less harmful for dumping at sea."[42] Thus, like the existing ocean dumping regulations, the LDC maintains a presumption against ocean dumping in favor of practicable alternatives.

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[40] 40 CFR 227.16(c).

[41] Section 2(b) of the Ocean Dumping Act, Public Law 92-532, October 23, 1972, states (emphasis added):

> The Congress declares that it is the policy of the United States to regulate the dumping of all types of materials into ocean waters and to prevent or strictly limit the dumping into ocean waters of any material which would adversely affect human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities.

[42] LDC, Annex III(C)(4).

This legal requirement for a demonstration of need for ocean dumping of sewage sludge has not been met by those who propose to continue dumping at the 106-Mile Site. Indeed, over 200 sewage treatment plants which had used the 12-Mile Site ceased ocean dumping and implemented land-based methods by December 31, 1981. Such methods include creating compost or fertilizer from sludge, or dewatering and landfilling sludges. Other less preferred alternatives include incineration of sludge or co-incineration of sludge and solid waste.

1. The Need for Pretreatment and Industrial Waste Reduction

A major obstacle to alternative uses for sludge which is currently ocean dumped is the high level of heavy metals and other toxic contaminants which are present in the sludge at issue. The characteristics of any particular sludge depends upon the kind and quantity of inputs to the treatment plant (including urban runoff and industrial waste), as well as the process used by the plant and its efficiency. This points to the real problem at the heart of the current dilemma -- the failure of the subject municipalities to institute effective pre-treatment and industrial waste reduction programs. Neither ocean dumping nor any of the land-based alternatives are environmentally acceptable options for managing highly contaminated sewage sludge. Effective pre-treatment improves the quality of the sludge and must go hand-in-hand with any chosen management option, including ocean dumping.

Ideally, the normal process of treating sewage effluent concentrates toxic contaminants from the raw sewage into the sludge, creating a relatively clean effluent that may be discharged into inland and coastal waters with minimal adverse environmental consequences. To dispose of the contaminated sludge in the ocean defeats the purpose of its treatment to improve water quality.

The quality of the sludge is greatly improved when industrial pretreatment is rigorously pursued. Industrial pretreatment reduces the high concentration of heavy metals and synthetic organic compounds in the sludge by limiting industrial discharges into the sewage system. Pretreatment generates cleaner effluent and cleaner sludge, and the cleaner the sludge is, the greater are the number of alternative management options for dealing with it in an environmentally sound manner.

EPA is currently revising existing regulations to assure that hazardous wastes discharged to Publicly Owned Treatment Works (POTWs) are adequately controlled to protect human health and the environment.[43] Recent amendments to section 405 of the Clean Water Act (Section 406 of the Water Quality Act of 1987) direct EPA to promulgate final regulations which identify toxic pollutants of concern in sewage sludge and which set numerical limits and/or management practices for each pollutant identified.

In addition, pretreatment must be complimented with efforts to reduce the generation of industrial waste. Chemicals that are safer to dispose of from an environmental perspective are often available and can be substituted for more toxic chemicals. The use of these safer alternatives must be encouraged.

Further, a critical component of an overall scheme for managing sewage sludge is missing, i.e., sludge standards. Efforts are currently underway within EPA to develop regulations for each principal method for using and disposing of sewage sludge, including land application to food chain and non-food chain crops, distribution and marketing, land filling, incineration and ocean disposal. EPA and the states must adopt and enforce numerical- and toxicity-based standards for sewage sludge. Such standards should be stringent enough to produce sludge that may be applied to a full range of management alternatives.

Rigorous enforcement and monitoring of pretreatment or source reduction programs are essential if our goal of pollutant-free sludge is to be achieved. Although pretreatment was mandated by Congress in 1972, regulations were not finalized until 1981, and those regulations have yet to be widely implemented. Both sewer authorities and state environmental protection authorities must enforce pretreatment regulations against illegal industrial dischargers.

2. Ocean Dumping of Sewage Sludge Falls at the Low End of A Hazardous Waste Management Hierarchy

The management of sewage sludge should be viewed in the context of an overall scheme for managing hazardous waste. The environmental community generally subscribes to a hierarchy of waste management options which recognize that when toxic chemicals or heavy metals are introduced into the environment, inevitable risks are created. Risk minimization requires emphasis on reducing waste at its source, recycling and recovery, waste treatment and destruction. Disposal -- either in the ocean or on land -- is viewed as the least attractive, bottom tier approach. Every effort should be made to utilize waste management options that are higher in that hierarchy.

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[43] "Approaches to Implementing the Recommendations of the Domestic Sewage Study," 52 Fed. Reg. 23477, June 22, 1987.

As regards the management of sewage sludge, two options falling at the higher end of the waste hierarchy which offer beneficial uses of the sludge deserve special mention, i.e., use of sludge for generating fertilizer or compost.

(a) Sludge as Fertilizer

After sludge is treated in both primary and secondary treatment, it can be processed further in digesters (underground tanks where solids are heated to 95 degrees F, mixed continuously and deprived of oxygen). While in the digester, bacteria decompose human fecal wastes, ground food from garbage disposals, and reduce waste concentrations from industries. The resultant organic, sludge slurry can be used as a fertilizer for agriculture, forests, land reclamation, or land dedicated to sludge disposal. In the first three cases, sludge spread on the land improves the land by facilitating nutrient uptake, increasing water retention, permitting easier root penetration, and improving soil texture (reducing runoff and easing soil workability). In the fourth case, large quantities of sludge are applied over a land area for many years. This practice acts as a treatment system whereby soil is used to bind metals and soil microorganisms, sunlight, and oxidation to destroy the organic matter in the sludge. Approximately 25% of the nation's sludge is land applied today, including its use on agricultural lands, forest lands and in land reclamation.

Despite its benefits, land application of sludge has its limitations as well. It may not be applied on all types of soil, e.g., soils with a water table of less than two feet; soils subject to flooding and ponding, and very sandy soils. Strict regulations must be adhered to in land application of sludge to protect groundwater and to prevent adverse impacts from heavy metals or pathogens present in the sludge. In addition, the very strong odor emanating from most sludge is an important deterrent to its widespread use. Subsurface injection of sludge-based fertilizer provides a potential solution to the odor problem.

(b) Sludge as Compost

Sewage sludge may be transformed into compost by mixing it with an organic bulking agent, such as woodchips, saw dust, leaves, or straw. Compost differs from fertilizer in that the nutrient content of compost is low. It is therefore considered to be a soil conditioner rather than a fertilizer.

The process of composting takes place in reactor (enclosed) or non-reactor (aerated pile or windrow) systems. Reactor systems process the organic matter in structures such as silos, which protect the material from the elements and also contain odor. While many foreign countries utilize reactor systems, their high cost has limited the number found in the United States. One of the few full-scale sludge reactors in this country is located in Cape May, New Jersey.

Non-reactor systems, such as that located in Middletown Township, New Jersey; use static aerated piles in which aerobic conditions are maintained by blowing or drawing air through the pile. Non-reactor systems also employ windrows which are turned at regular intervals. While reactor systems are more expensive to construct and maintain, they hold the advantage of more reliably producing pathogen-free, non-odorous compost.

Regardless of how the compost is processed, its content must be strictly regulated for food-crop or non-food crop uses. It has been suggested that some of the sludge currently generated by New Jersey's ocean dumping sewage authorities may indeed be suitable for such land applications. It has been reported that an analysis of pollutants in the sludge that is routinely ocean dumped was performed for all data reported between September 1985 and September 1987.[44] The analysis revealed that the subject sludge achieved land application limits for most parameters.[45] Although additional parameters must be evaluated to determine the suitability of the sludge for various land applications, it appears that alternative management options for the New Jersey sludge may be more feasible than anticipated. Similar information concerning the New York sludge does not appear to be available.

E. Enforcement and Monitoring

Until alternatives can be instituted, all sludge dumping operations must be strictly monitored and enforced. Recently, reports from commercial and recreational fishermen indicate that incidents of "short dumping" (dumping outside the 106-Mile Site) have been rampant. Mechanisms must be in place to prevent such illegal dumping activity.

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[44] Statement of Arnold Schiffman, New Jersey Department of Environmental Protection, before the New Jersey Senate Special Committee to Study Coastal and Ocean Pollution, September 15, 1987, at 7.

[45] Id.

The Coast Guard Mission Performance Standard for surveillance of ocean dumping activities requires that only 10 percent of sludge dumping activities be monitored under the Ocean Dumping Surveillance System.[46] That system requires that the vessels be equipped with so-called "silver boxes" that collect data on discharges from the vessels. This data is retrieved and evaluated after the fact to determine if compliance with permit requirements was achieved. We understand that all the sludge dumping vessels are equipped with "silver boxes" to monitor dumping operations and EPA is prohibiting any sludge barge from dumping without such a device. The placement of such boxes aboard ocean dumping vessels is the logical first step in our enforcement efforts.

In the meantime, at least 11 vessels engaged in sludge dumping activities in January of 1988 were not equipped with the silver boxes. These vessels operate virtually without surveillance. They are held accountable solely on the basis of reports submitted by the tug boat captains which include a description of their dumping activities, including their route to the site, the amount of sludge dumped and the location of the dumping activity. Under the circumstances it is impossible to verify officially reports of "short dumping."

Clearly, surveillance efforts must be increased. In 1986, in excess of 2500 transits to the 12- and 106- Mile sludge sites were conducted.[47] Because such surveillance efforts place an enormous burden on the Coast Guard, any increases in such efforts must be accompanied with increases in resources. Given the recent cuts in the Coast Guard's budget, the ability to maintain a high level of surveillance is greatly diminished.

We understand that preliminary discussions have taken place between representatives from EPA, NOAA and the Coast Guard to consider the use of satellites for monitoring environmental parameters at the dump site and to provide more effective surveillance. Such a system would use remote capabilities transmitted in a real time basis by satellite. The satellite would pick up data from sensors installed on the vessels and would feed that data back to a shore facility. The transmitted data would enable enforcement authorities to determine immediately if discharges were occurring outside of the designated site, and to determine the rate of discharge. Such a system would greatly enhance enforcement capabilities.

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[46] Telephone conversation between Sally Ann Lentz, Oceanic Society Staff Attorney, and Tom Riley, Captain of the Port of New York Compliance Branch Officer, February 12, 1988.

[47] Id.

In addition, the satellite could identify the existence of warm core eddies in the area of the 106-Mile Site (mentioned above) that might circulate sludge materials onto the shelf or near shore. Dumping activities could be suspended pending the dissipation of those eddies as a mitigation measure.

Although the Coast Guard is making a good start by equipping the sludge dumping vessels with silver boxes to monitor location, this is only a first step. A satellite approach such as that described above offers the distinct advantage of identifying a permit violation at the time of its occurrence. Once the violation is identified, intervention steps can be taken to terminate further illegal dumping operations.

The same satellite data gathering system could also be used to conduct environmental monitoring of the site, as part of a full scale monitoring program. Environmental monitoring is critical to ensure that dumping is terminated at the first sign of any significant adverse environmental impacts.

F. Legislative Initiatives

Congressional action is sorely needed to put an end to ocean dumping of sewage sludge. As noted above, we strongly support the efforts of Representatives Hughes, Saxton and Schneider for calling the Congress' attention to the issue of sewage sludge dumping. For the various reasons given earlier, our Environmental Coalition would strongly prefer that sewage sludge dumping at the 106-Mile Site be prohibited now, without further delay.[48] Nonetheless, some delay in ending ocean dumping may be merited to enable the current dumpers to develop appropriate alternative means of handling their sewage sludge. The 1992 deadline as proposed in H.R. 4338 serves that purpose, although we would prefer the 1991 deadline contained in S. 2030 introduced by Sen. Lautenberg.

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[48] The Atlantic Offshore Fishermen's Association, for example, believes that all ocean dumping should be terminated immediately. Further delays, given repeated warnings of the need to stop such dumping that date back to at least 1970, will only result in further damage to the marine ecosystem and its living resources.

H.R. 4338 will provide the necessary incentives to implement alternative sludge management technologies within an environmentally responsible time frame. The bill requires that all ocean dumping of sewage sludge and industrial waste cease after December 31, 1992. In the interim, municipal authorities that continue to ocean dump their sewage sludge must pay stiff per ton disposal fees. This requirement, however, may be waived if the authorities enter into a compliance agreement with EPA which sets a mutually agreed upon schedule to phase in alternative sludge management technologies and phase out ocean dumping by December 31, 1992.

On June 23, 1988, the Senate Environment and Public Works Committee favorably approved S. 2030, introduced by Senator Lautenberg, which would ban the ocean dumping of sewage sludge after December 31, 1991. While S. 2030 and H.R. 4338 are similar, S. 2030 contains a provision calling for public participation in the review and implementation of the compliance agreements established pursuant to the bill. We urge the Subcommittee to adopt a similar provision. We also recommend that the Subcommittee adopt a provision which calls for stepped up monitoring program similar to that contained in S. 2030.

We also would like to make one technical suggestion regarding H.R. 4338 as reported by the Merchant Marine and Fisheries Committee. Section 1(c) and Section 2(b) of H.R. 4338 define "sewage sludge" as "any solid, semisolid, or liquid waste generated by a wastewater treatment plant or a manufacturing or processing plant." This definition will result in a prohibition against the dumping of both sewage sludge and industrial waste. We wholeheartedly agree that the ocean dumping of industrial waste should be prohibited. However, including industrial waste in the definition of "sewage sludge" will create unnecessary confusion in statutory construction. The current law contains separate definitions for industrial waste and sewage sludge (Marine Protection Research and Sanctuaries Act, Section 1412a(d)(1) and (2)). If enacted as currently proposed, there will be two different definitions of "industrial waste." We therefore recommend that separate definitions for industrial waste and sewage sludge be maintained, and that each of those definitional provisions be amended to include the prohibition on future dumping. In this way, misinterpretation of the statute can be avoided.

Last year Congress enacted legislation providing for the development of a New York Bight Restoration Plan and authorized

3 million dollars over a three-year period toward that end.[49] However, the continued dumping of sewage sludge in the North Atlantic threatens to undermine all attempts to successfully restore the New York Bight. The termination of sewage sludge dumping is a critical part of any plan to restore the area, and is one course of action that should be pursued immediately.

III. Industrial Waste Dumping

As with sewage sludge dumping, ocean dumping of industrial waste preceded enactment of the Ocean Dumping Act. Industrial waste has been ocean dumped at the 106-Mile Site since 1961.[50] The largest volumes of waste were dumped in the early 1970s (almost five million metric tons annually). While ocean dumping of sewage sludge has increased over the years, industrial waste dumping has steadily decreased to about 200,000 metric tons annually.[51] Whereas over 300 companies were ocean dumping their wastes at one time, that number had decreased to three in 1987.[52] Currently, Allied Chemical continues to dump approximately 40,000 metric tons of acid waste at the New York Bight Acid Waste Disposal Site. The Allied Chemical permit expires September 30, 1988. We understand that the company has submitted an application to renew the permit. Earlier this month Du Pont Company voluntarily withdrew its permit application to continue dumping approximately 50,000 metric tons of aqueous acid iron waste at the 106-Mile Industrial Waste Site. As a result of Du Pont's recent action, there are currently no permits in effect or pending for dumping of industrial waste at the 106-Mile Site.

The tremendous progress that has been made to dramatically reduce the amount of industrial waste that is ocean dumped is said to be threatened by closing off of some land-based options for managing this waste.[53] Just when we are near to achieving total elimination of ocean dumping of industrial waste, there may be increasing pressure to turn back to the ocean as the cheapest, most convenient option for disposing of industrial waste. There may also be increasing pressure to turn to the ocean for disposal of coal ash and flue gas desulfurization sludges generated by coal burning electric utilities and industrial boilers.[54] These wastes are known to contain heavy metals and pollutants, which are trapped in the sludges and ashes to reduce air pollution. The pressure to shift pollutants from one media to another must be strongly resisted.

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[49] United States-Japan Fishery Agreement Approval Act of 1987, Subtitle C, New York Bight, Sections 2301 - 2305, Congressional Record, H 11737 - 11738, December 18, 1987.

[50] OTA Report at 23. The Industrial Waste Dump Site is located about 10 nautical miles west of the sewage sludge dumpsite. OTA Report, at 67.

[51] Id.

[52] OTA Report, at 67.

[53] OTA Report, at 257.

A. Environmental Effects

Permits for ocean dumping of acid waste have been based on the assumption that the acid content of the waste will be rapidly neutralized (within 4 hours of discharge) and that effects will be short lived and limited to the immediate vicinity of the site. This assumption does not account for the repeated destruction of marine organisms that will undoubtedly be destroyed in the immediate wake of the discharge before neutralization is complete. Nor does this assumption account for the effects of heavy metals (e.g., cadmium, mercury) and known carcinogenic or mutagenic material (e.g., arsenic, copper) which are present in much of the waste that is dumped. Indeed, ocean dumping of industrial waste is the suspected cause of the adverse impacts on copepod populations, fish eggs, and phytoplankton, which have manifested at the 106-Mile Site (described in detail in Part II(C)(2), above). The evidence suggests that continued dumping of industrial waste is environmentally unacceptable.

B. Land-Based Alternatives Exist For Managing Industrial Waste

As with any permit to ocean dump, permits for dumping industrial waste may be issued only upon a finding of need for the dumping activity. As noted in Part II(D), above, a demonstration of need requires a finding that no alternative land-based option is available for managing the waste. Such options are available for the wastes that have been ocean dumped ocean dumped in recent years. The Allied Chemical waste, for example, can be sold for use as hydrochloric acid. Indeed, 10 percent of the waste was sold in 1984 and 6 percent was sold in 1985.[55] The Du Pont waste can be processed to produce marketable ferric chloride and recyclable hydrochloric acid. That over 300 companies have succeeded in finding suitable land-based alternatives to ocean dumping, and that Allied and Du Pont have themselves developed alternatives for dealing with their waste, suggests little basis for continued ocean dumping of industrial waste. On this basis, we strongly support the intent of H.R. 4338 to phase out industrial waste dumping by December 31, 1992.

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[54] NOAA's National Marine Pollution Program, at 127.

[55] OTA Report, at 261.

IV. Ocean Incineration

In addition to eliminating direct dumping of sewage sludge and industrial waste, H.R. 4338 prohibits ocean incineration of such materials. We believe that such an interpretation is sound public policy given recent developments with regard to ocean incineration, both domestically and internationally.[56]

After several years of heated debate about the acceptability of ocean incineration as a waste management option, in January of this year the Environmental Protection Agency (EPA) "suspended" indefinitely its ocean incineration program. No funds were appropriated to support any regulatory initiatives to promote the use of this technology. The Agency's current position is that without special ocean incineration regulations, no permits for incineration at sea will be issued. Given that no ocean incineration regulations are in place, and no funds are available to develop such regulations, there is little likelihood that any ocean incineration permits will be issued in the near future.

Although EPA's justification for suspending the program was based upon budgetary constraints, the Agency's decision is consistent with growing international rejection of ocean incineration as a waste management option. At the Fourteenth Meeting of the Oslo Commission, which met from June 22 - 24, 1988, it was agreed that ocean incineration would be prohibited in the North Sea by December 31, 1994. As an interim measure, the Commission decided that the North Sea States should take steps to minimize or substantially reduce, by not less than 65%, the use of ocean incineration by January 1, 1991. The Commission also agreed that Contracting Parties shall not export wastes intended for ocean incineration outside the Oslo Convention area

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[56]. For a more detailed discussion of this technology, see, Testimony prepared by the Oceanic Society, on behalf of the American Littoral Society, Citizens For a Better Environment, Clean Ocean Action, Environmental Policy Institute, Gulf Coast Fisherman's Environmental Defense Fund, Natural Resources Defense Council, Oceanic Society, and Texas Environmental Coalition, Before the Subcommittee on Oceanography and Subcommittee on Fisheries and Wildlife Conservation and the Environment of the House Committee on Merchant Marine and Fisheries Concerning The Ocean Incineration Act of 1987, H.R. 737, November 17, 1987.

(the North Sea area). The phasing out of ocean incineration in the North Sea is particularly significant since it is the only area in the world where this waste disposal practice is currently carried out.

Efforts are already underway to end ocean incineration world-wide. The Government of Denmark has put forward a proposal to prohibit ocean incineration under the London Dumping Convention, which regulates this activity internationally. The Danish proposal will be considered at the Eleventh Meeting of the LDC, which meets in London from October 3 - 7, 1988. The United States should support the Danish proposal as an indication of its strong commitment to end ocean pollution.

We understand that some industry representatives have suggested an amendment to H.R. 4338 to keep open the door for ocean incineration. In light of current momentum to end ocean incineration, such an amendment would send the wrong message to the world community. We should follow the lead of the European countries who have used this technology for almost two decades and put an end to _all_ ocean dumping of sewage sludge and industrial waste -- including dumping by ocean incineration -- once and for all.

V. Conclusion

As we begin to redress the mistakes of the past in waste management, there is, for some, a desire to turn to the ocean to dispose of our waste. Contrary to the misguided philosophy of some decision makers in government and industry, though, the oceans are not the "out of sight, out of mind" solution to this serious and growing problem.

As noted at the outset of my testimony, ocean and coastal waters already are seriously degraded, and the problem is increasing. Leaving aside the serious adverse impacts to our oceans and coastal areas that can result from ocean dumping of sewage sludge, those areas are being threatened in ever increasing ways by ocean dumping of dredge spoils and industrial waste, vessel source pollution and by land-based sources of marine pollutants -- through pipeline discharges, urban and agricultural runoff, atmospheric deposition, debris and litter.

We must, and we can, take the necessary steps to solve the serious and growing problem of ocean and coastal pollution. However, if the shores of New Jersey and other coastal communities across the nation are to be saved, we must confront all sources of waste and we must act quickly. Our Environmental Coalition is working to halt the contamination of our vital ocean and coastal resources. We look forward to working with you and the members of your Subcommittee to achieve this objective.

Attachments

Figure 1

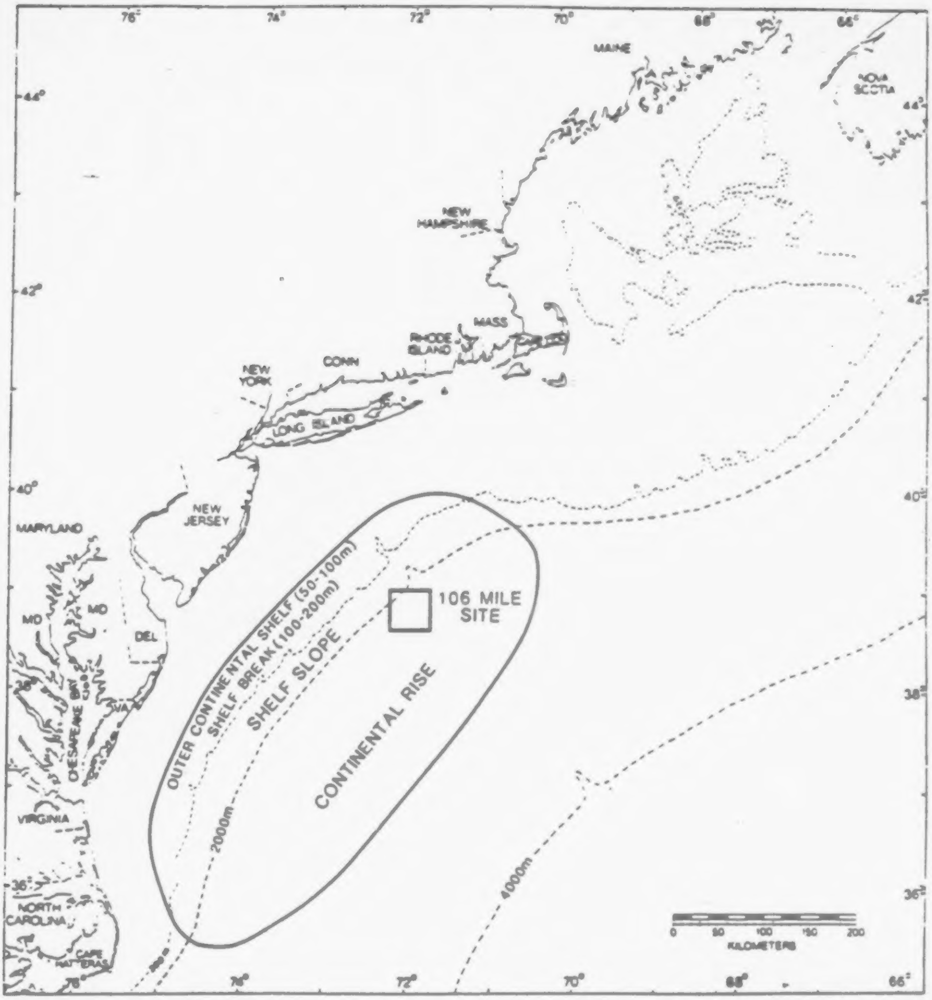
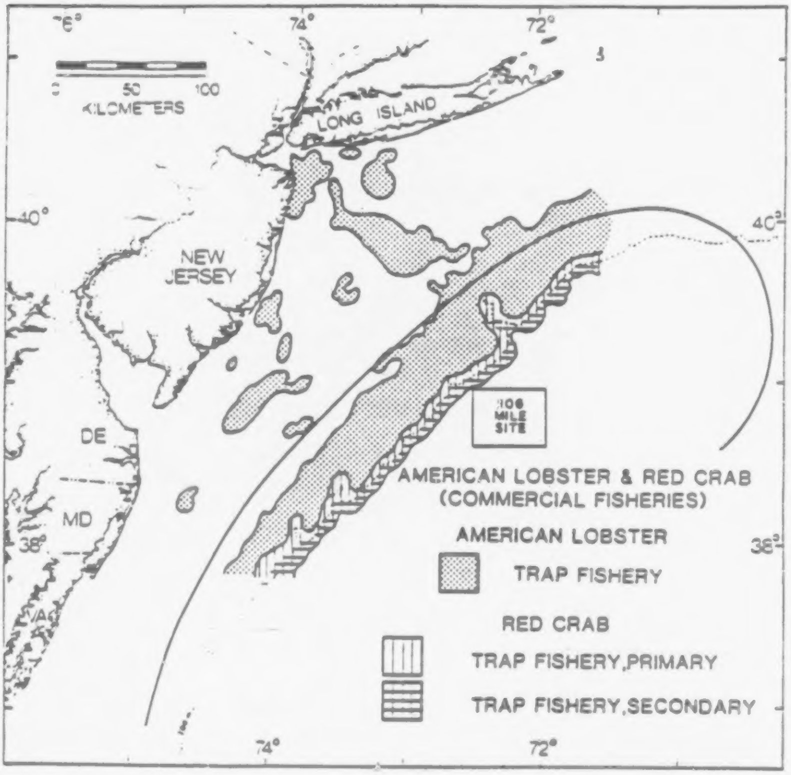

76°
74°
72°
70°
68°
66°
44°
42°
40°
38°
36°
MAINE
NOVA SCOTIA
NEW HAMPSHIRE
MASS
RHODE ISLAND
CONN
NEW YORK
LONG ISLAND
NEW JERSEY
MARYLAND
MD
MD
DEL
VA
CHESAPEAKE BAY
VIRGINIA
NORTH CAROLINA
CAPE HATTERAS
106 MILE SITE
OUTER CONTINENTAL SHELF (50-100m)
SHELF BREAK (100-200m)
SHELF SLOPE
CONTINENTAL RISE
2000m
4000m
200m
0
50
100
150
200
KILOMETERS

Figure 1. The 106-mile dumpsite, potential area of impact (PAI) and major bathymetric zones within.

Source: National Marine Fisheries Service, "106-Mile Site Characterization Update," NOAA Technical Memorandum, NMFS - F/NEC - 26, August 1983.

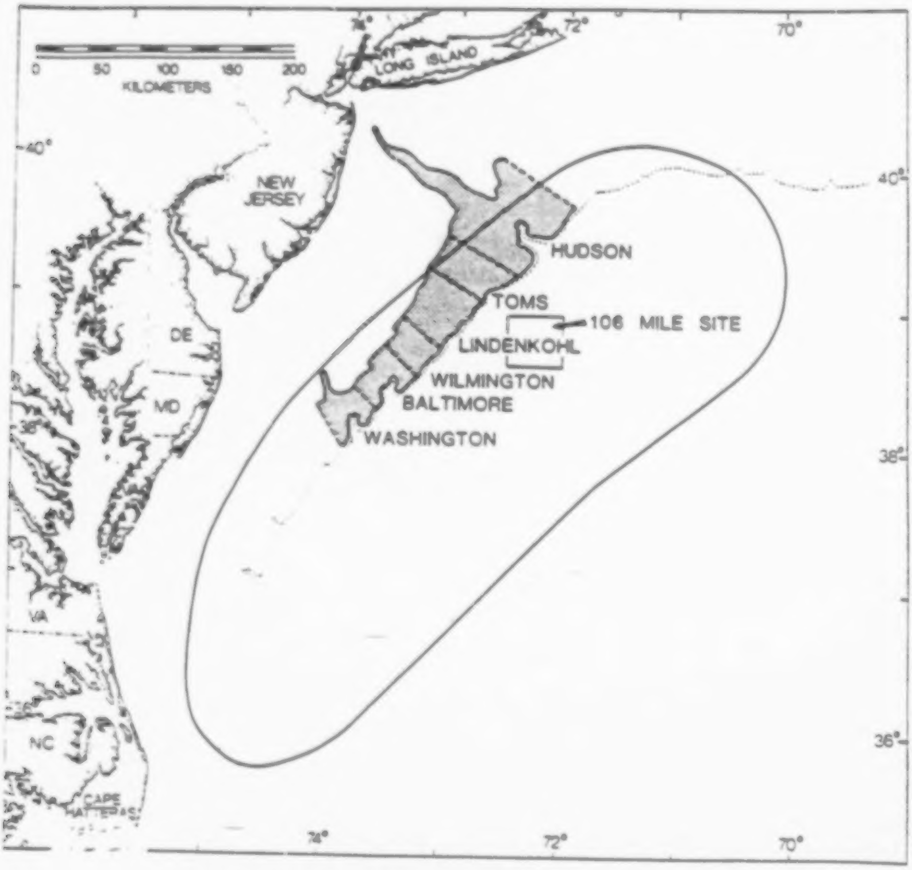
Figure 2


76°
74°
72°
0 50 100
KILOMETERS
LONG ISLAND
40°
NEW JERSEY
DE
MD
38°
VA
106 MILE SITE
AMERICAN LOBSTER & RED CRAB (COMMERCIAL FISHERIES)
AMERICAN LOBSTER
TRAP FISHERY
RED CRAB
TRAP FISHERY,PRIMARY
TRAP FISHERY,SECONDARY
74°
72°

New Jersey's commercial fishing grounds for American lobster and red crab (Long and Figley 1981) including location of Deepwater Dumpsite 106 (DWD-106) and its potential area of influence (PAI).

Source: National Marine Fisheries Service, "106-Mile Site Characterization Update," NOAA Technical Memorandum, NMFS-F/NEC - 26, August 1983.

Figure 3


74°
72°
70°
0
50
100
150
200
KILOMETERS
NY
LONG ISLAND
40°
NEW JERSEY
DE
MD
38°
VA
NC
CAPE HATTERAS
HUDSON
TOMS
106 MILE SITE
LINDENKOHL
WILMINGTON
BALTIMORE
WASHINGTON
40°
38°
36°
74°
72°
70°

New Jersey's offshore sportfishing grounds (shaded area) including locations of submarine canyons and Deepwater Dumpsite 106 (DWD-106) and its potential area of influence (PAI).

Source: National Marine Fisheries Service, "106-Mile Site Characterization Update," NOAA Technical Memorandum, NMFS-F/NEC-26, August 1983.

Table I
(see attached notes)

The Oceanic Society
Chemical Analyses of New York City Sewage Sludge (**)
Amounts Dumped at the 106-Mile Site (Kg/yr) - 1986 (***)

	26th Ward	Bowery Bay	Coney Island	Hunts Point	Owls Head	Rock-away	Tallman Island	Wards Island	Newton Creek	Total
Arsenic	389.28	237.13	70.64	180.60	136.77	20.14	101.98	422.20	480.42	2,039.17
Cadmium	499.85	416.41	38.11	266.03	247.65	11.96	212.92	232.45	2,725.02	4,650.39
Chromium	17,324.17	22,653.84	1,184.88	6,688.74	2,536.65	229.29	3,399.34	14,547.87	38,954.58	107,519.36
Copper	37,501.73	31,006.43	5,706.64	18,029.20	9,518.97	2,847.25	8,865.84	45,303.95	58,982.57	217,762.58
Lead	10,904.04	7,863.65	2,593.93	5,259.78	6,250.09	409.24	2,503.57	15,022.25	47,027.24	97,833.79
Mercury	45.86	51.34	17.48	31.62	21.71	3.77	21.59	70.37	104.11	367.85
Nickel	3,704.31	2,375.39	653.29	1,623.54	1,132.34	57.18	3,904.65	1,660.35	8,633.42	23,744.47
Vanadium	377.06	395.22	119.77	346.60	253.66	20.90	158.48	830.18	855.84	3,357.71
Zinc	39,590.82	54,149.20	6,366.33	18,242.02	14,121.55	1,721.12	7,832.26	27,514.44	71,599.63	241,137.38
Arsenic(pentavalent)	*		*	*	*			*	*	
Arsenic(trivalent)	*		*	*	*			*	*	
Chlorine residual	917.16		*	182.42	*			*	*	1,099.58
4-Chlorophenol	*		*	*	*			*	*	
Chlorpyrifos									*	
Chromium(trivalent)	3.57		0.32	5.78	51.26			1.66	773.35	835.93
Cyanide			28.82	*	2.62			276.73	70.58	378.75
Demeton										
Guthion										
N-nitrosodibutylamine	*		*	*	*			*	*	
N-Nitrosodiethylamine	*		*	*	*			*	*	
N-Nitrosopyrrolidine	*		*	*	*			*	*	
Pentachlorinated ethanes	*		*	*	*			*	*	
H-sulfide	101.91		10.25	243.23	104.60			379.51	238.22	1,077.72
2,3,5,6 tetrachlorophenol	*		*	*	*			*	*	
Thallium	*		*	*	*			*	*	
Antimony	*		*	*	*			*	*	
Beryllium	*		*	*	*			*	*	
Phenols	61.14		7.69	45.61	54.92			616.70	286.75	1,072.81

(*) below detection limits

(**) Quantities derived, by the Oceanic Society, from data in "Special Permit Application for the Disposal of Sewage Sludge from Fourteen New York City Water Pollution Control Plants at the Deepwater Municipal Sludge Dump Site" submitted to EPA by the New York City Department of Environmental Protection in January, 1987 and the "Response to EPA's Comments" on that document, submitted January, 1988.

(***) for pounds per year, multiply by 2.2

Table II
(see attached notes)

The Oceanic Society
Chemical Analyses of New York City Sewage Sludge (**)
Amounts Dumped at the 106-Mile Site (Kg/yr) - 1987 (***)

	26th Ward	Bowery Bay	Coney Island	Hunts Point	Owls Head	Rock-away	Tallman Island	Wards Island	Newton Creek	Port Richmond	North River	Red Hook	Total
Arsenic	423.54	300.40	115.34	164.52	166.58	23.87	106.38	286.46	439.44	12.89	116.25	9.41	2,165.09
Cadmium	543.84	527.50	62.22	242.35	301.62	14.17	222.10	157.72	2,492.59	6.61	193.58	15.68	4,779.99
Chromium	18,848.83	28,697.85	1,934.58	6,093.38	3,089.46	271.66	3,545.97	9,870.61	68,438.37	70.05	5,258.98	425.91	146,545.64
Copper	40,802.17	39,278.89	9,317.35	16,424.42	11,593.42	3,373.44	9,248.28	30,738.38	53,951.71	644.47	11,088.83	898.05	227,359.41
Lead	11,863.67	9,961.66	4,235.16	4,791.61	7,612.16	484.87	2,611.56	10,192.48	43,016.10	400.69	4,618.90	374.07	100,162.94
Mercury	49.89	65.03	28.55	28.81	26.44	4.47	22.52	47.74	95.23	1.91	21.42	1.73	393.74
Nickel	4,030.32	3,009.14	1,066.63	1,479.03	1,379.11	67.74	4,073.08	1,126.54	7,897.05	58.98	14,496.78	1,174.05	39,858.46
Vanadium	410.24	500.66	195.55	315.75	308.95	24.76	165.32	563.27	782.84	13.59	179.91	14.57	3,475.41
Zinc	43,075.12	68,596.12	10,394.44	16,618.30	17,199.03	2,039.20	8,170.11	18,668.34	65,492.61	844.81	12,005.69	972.30	264,076.07
Arsenic(pentavalent)	*		*	*	*			*	*				
Arsenic(trivalent)	*		*	*	*			*	*				
Chlorine residual	443.50		*	166.18	*			*	*				609.68
4-Chlorophenal	*		*	*	*			*	*				
Chlorpyrifos													
Chromium(trivalent)	3.88		0.52	5.26	62.43			11.27	707.38				790.74
Cyanide			47.06	*	3.19			1,877.56	64.56				1,992.37
Demeton													
Guthion													
N-nitrosodibutylamine	*		*	*	*			*	*				
N-Nitrosodiethylamine	*		*	*	*			*	*				
N-Nitrosopyrrolidine	*		*	*	*			*	*				
Pentachlorinated ethanes	*		*	*	*			*	*				
H-sulfide	110.88		16.73	221.58	127.40			257.49	217.91				951.98
2,3,5,6 tetrachlorophenol	*		*	*	*			*	*				
Thallium	*		*	*	*			*	*				
Antimony	*		*	*	*			*	*				
Beryllium	*		*	*	*			*	*				
Phenols	66.53		19.87	41.55	66.89			418.43	262.29				875.55

(*) below detection limits

(**) Quantities derived, by the Oceanic Society, from data in "Special Permit Application for the Disposal of Sewage Sludge from Fourteen New York City Water Pollution Control Plants at the Deepwater Municipal Sludge Dump Site" submitted to EPA by the New York City Department of Environmental Protection in January, 1987 and the "Response to EPA's Comments" on that document, submitted January, 1988.

(***) for pounds per year, multiply by 2.2

Explanatory Notes for Tables I and II

Constituents of New York City Sewage Sludge

The attached tables list estimates of annual quantities of hazardous materials contained in sewage sludge from the New York sewage treatment plants (in our view grossly underestimated) dumped at the 106-mile site. The quantities were derived from analyses presented in New York City's 1987 application for a dumping permit from EPA and in the City's response to EPA's comments on the application. We believe the quantities measured underestimate what is actually present in the sludge for the following reasons:

(a) The heavy metals (arsenic through Zinc in the tables) were measured in the total sludge which was defined in the application as the liquid phase plus suspended solids (particles that do not sink). The solids which sink were not included in the analyses even though the solid phases are likely to contain a much larger proportion of hazardous materials than the pure liquid phase. It is not known what proportion of the sewage sludge is solids which settle out, but estimates of 1% to 8% are offered in general descriptions of municipal sewage sludge.

(b) The additional hazardous materials assessed (including several organics, heavy metals and inorganic nonmetals) were measured only in the pure liquid phase. All solids were omitted from those analyses, so the magnitude of the error could be very large in light of the fact that many of these materials are found preferentially or exclusively associated with particulates.

○